

# MANUFACTURERS RECORD

A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,  
Mining, Contracting, Engineering, Building, and General  
Business Interests of the South and Southwest

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No. 24

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## In This Issue:

West Virginia's Importance in Coal  
Production.

Notable Building Operations in South  
Carolina's Capital City.

In the Fruit Belt of Western  
Carolina.

Suggestions of a Revolution in  
Agriculture.

Alphabetical Index, Page 122.

Classified Index, Pages 116 to 121.

Classified Opportunities, Pages 82, 83, and 84.

BALTIMORE, DECEMBER 21, 1911

**B. t. u.****THE MEASURE OF HEAT**

The term British thermal unit (abbreviated B. t. u.), often confronts the user of coal. As a yard stick is a measure of length, a B. t. u. is a measure of heat. The total amount of heat contained in a pound of fuel, all of which is liberated by complete combustion, is expressed in B. t. u.'s. A single heat unit is the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit at atmospheric temperature. Heat units make steam and steam makes power.

Below are tabulated, from some of the highest scientific authorities, the heat values of the commoner combustibles contained in coal:

SUBSTANCE	B. t. u. Per Lb.	
Acetylene Gas	21,465	Included in the "Volatile Matter" of proximate analysis.
Marsh Gas	23,515	
Olefiant Gas	21,345	
Hydrogen Gas	62,035	
Carbon	14,450	"Fixed Carbon" of proximate analysis.

**CLINCHFIELD COAL IS HIGH IN HEAT VALUE**

Clinchfield coal is rich in Hydrogen and the Hydro-Carbon gases shown above. These "VOLATILE" gases burn above the fuel bed with rapidity and great intensity in close proximity to the boiler surfaces. Quick liberation of heat units means quick generation of steam; hence the economy in using Clinchfield coal which maintains boilers at high capacity easily and continuously, thus delivering more than the rated horsepower. Clinchfield coal ranges from 14,000 to 14,700 heat units per pound, because it contains small percentages of oxygen, moisture and ash, which are valueless, and large percentages of the combustibles highest in heat value.

**OUTPUT OF MINES OF****CLINCHFIELD COAL CORPORATION**

2,000,000 Tons Per Annum, and Growing

**CLINCHFIELD FUEL COMPANY**

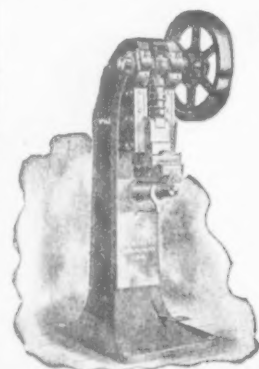
Selling Agent

SPARTANBURG, S. C.

Southern Terminal C., C. & O. Ry.

**PERFORATED METALS  
FOR ALL USES**

You will find our prices and goods "RIGHT"  
Send complete specifications.  
Send for Metal sample plate. Erdle Perforating Co., Rochester, N. Y.

**Machinery for the Manufacture  
of Pieced Tinware**

The Bliss Patent Duplex Folding and Seaming Press shown, built in several sizes, greatly facilitates the manufacture of lock-seamed tinware. Exceedingly simple and reliable in operation, it forms the two hooks at one stroke, and closes them on the second stroke.

Send for Pieced Tinware Machinery Catalogue No. 10

**E. W. BLISS CO.**

4 Adams Street BROOKLYN, N. Y.  
Representatives for Chicago and Vicinity: Stiles-Morse Co., 562 Washington Boulevard, Chicago, Ill.

**LACQUERS FOR ALL PURPOSES**

Brass, Copper, Steel, Silver, Oxidized Iron, Etc.

**DURLACQUE MFG. CO.** 2322 OLIVE STREET ST. LOUIS, MO.

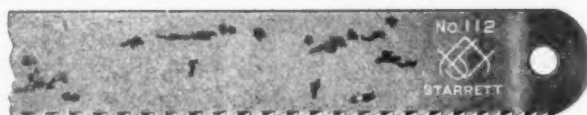
**SYRACUSE  
Ash or Coal Barrows**

Strong, well balanced, convenient; tubular steel frame; extra heavy steel wheel; legs provided with renewable steel shoes.

**THREE SIZES**

No. 52, 6 cubic feet; No. 54, 8 cubic feet;  
No. 55, 10 cubic feet.

**SYRACUSE CHILLED PLOW CO.**  
SYRACUSE, N. Y.



When you sell a Hack Saw try to find out on what sort of work it will be used. Show your clerks what each kind of saw will do. This will add to your reputation and your sales.

**Starrett Hack Saw Frames**

will immediately be coveted by a good mechanic—he will see the many special features and the fine quality of workmanship and finish.

Send for free catalog 19EC.

**THE L. S. STARRETT COMPANY  
ATHOL, MASS., U. S. A.**

New York

150 Chambers St.

Chicago

17 N. Jefferson St.

London,

36-37 Upper Thames St., E. C.

B-14













Steel Pipe and Penstocks.

## RITER-CONLEY MFG. CO.

PITTSBURGH

### STEEL CONSTRUCTION

Plate and Structural Work of Every Description  
COMPLETE PLANTS

You can get a "rocker-joint"  
only in a  
**Morse Silent Chain**



**Y**OU can get other chains with possibly as high *initial* efficiency. You can also readily understand that the joint is the most important part of this type of chain. Upon the joint depends whether you get only *initial* efficiency, or *sustained* efficiency. The difference means more than the extra cost of the better chain.

The joint of the Morse Silent Chain consists of *two* steel pins, specially shaped, which work against each other on exactly the same principle as the rockers of a chair work upon the floor. This action eliminates turning and rubbing friction, and reduces wear to almost nil.

When you want a driving chain giving 99% sustained efficiency, get a "Rocker-Joint," and remember that is an *exclusive* feature of the Morse Silent Chain.

Write for Bulletin 10-X.

MORSE CHAIN CO.,

Ithaca, N. Y.

# FOSTORIA

SOUTHERN  
STOCKSQUICK  
DELIVERIES

## CARBON

Standard Mill Type All Specials

### DRAWN WIRE MAZDA 100-125 Volts

Regular Type 25, 40, 60, 100, 150, 250 Watts.  
Round Bulb 25, 40, 60, 400, 500 Watts.

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Regular Type 40, 60, 100, 150, 250 Watts.  
Round Bulb 40, 60, 500 Watts.

FLASHLIGHT, MINIATURE, SIGN AND STREET SERIES

GEM ALL TYPES TANTALUM

We have a special proposition for Cotton Mills and other industrial plants. Get it. Your plant is not modern without modern illumination.

## The Fostoria Incandescent Lamp Co.

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Southern Office, 73 South Pryor Street, Atlanta, Georgia

### SOUTHERN AGENCIES

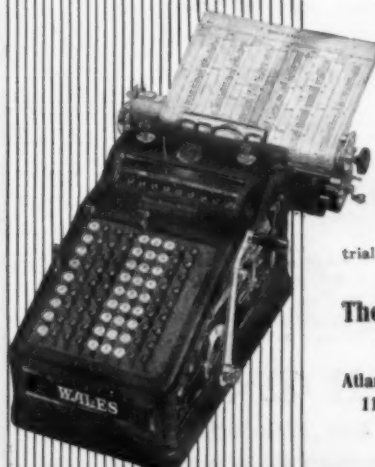
Nashville Machine Co., Nashville, Tenn. Perry-Mann Elec. Co., Columbia, S. C.  
Carolina Supply Co., Greenville, S. C. W. M. Reay, Norfolk, Virginia.  
Devere Electric Co., Cincinnati, O. Summers-Parrott Hdw. Co., Johnson City, Tenn.  
Ingram-Graham Elec. Co., Jacksonville, Fla. Woodward-Wight & Co., New Orleans, La.  
Norton Hdw. Co., Norton, Va. Fitzhugh-Perkins Co., Dallas, Texas.  
Deshon & Davison, Tulsa, Okla.



## Sold After Competitive Tests

97 out of every 100 WALES Visible Adding and Listing Machines are sold after rigid competitive tests. For instance: Sears, Roebuck & Co. of Chicago compared the WALES, point by point, with every other adding machine. They were so strongly convinced they purchased WALES machines to the value of \$22,875. This is the largest order ever given for adding machines to be used in one office.

## WALES Visible Adding and Listing Machine



On the WALES all the work is in plain view. This means accuracy, increased speed, greater comfort for the operator—no bending forward or backward.

### FIVE-YEAR GUARANTEE

The WALES is the only adding machine on the market guaranteed five years. This, in itself, is undeniable proof of WALES durable construction.

### FREE TRIAL

Tell us what your business is, and let us send you a WALES for free trial. No expense to you—no obligation.

### Mail Coupon NOW

### The Adder Machine Co.

WILKES-BARRE, PA.

Atlanta Office:  
115-N. Pryor St.Pin  
Coupon  
to your  
Letterhead

Send particulars of your free trial offer and booklet describing the WALES Visible.

Name.....  
Address.....  
Business.....  
Mfrs. Record 12-21-11.



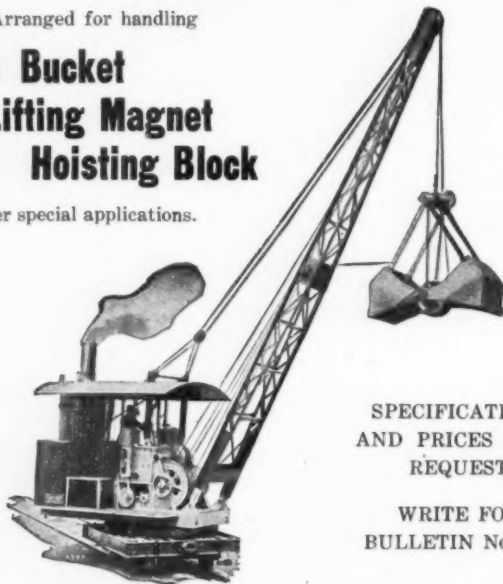
## Locomotive Cranes

The Latest Design of the  
Foremost Manufacturers

Arranged for handling

**Grab Bucket  
Lifting Magnet  
Hoisting Block**

and other special applications.



SPECIFICATIONS  
AND PRICES UPON  
REQUEST.

WRITE FOR  
BULLETIN No. 119.

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PHILADELPHIA

CHICAGO

INDIANAPOLIS

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Boston, 131 State Street.

Buffalo, 601 Ellcott Square.

Pittsburgh, 1501-3 Park Bldg.

St. Louis, Central Natl. Bank Bldg.

Seattle, 439 New York Block.

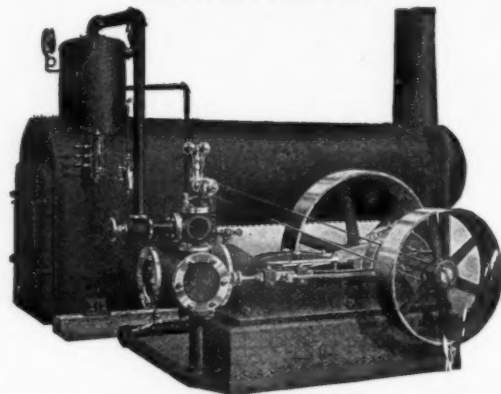
Denver, Lindrooth, Shubart & Co.

New Orleans, Wilmot Machy. Co.

San Francisco, Eby Machy. Co.

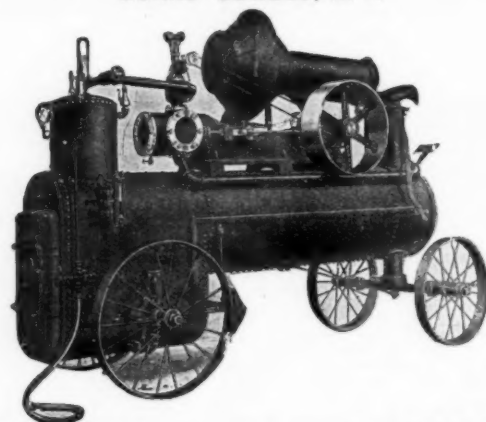
## AMES IRON WORKS

MANUFACTURERS OF



## ENGINES AND BOILERS

WORKS—OSWEGO, N. Y.



AGENCIES THROUGHOUT THE SOUTH

## POWER PLANT REPAIRS

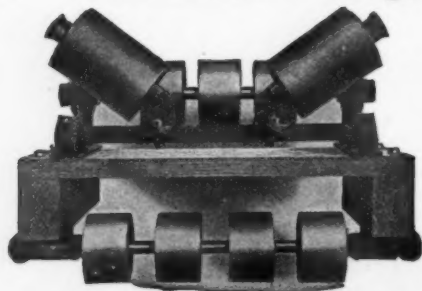
Engines, Boilers and Pumps Repaired  
Cylinders Bored Without Dismantling

WE ALSO BRAZE BROKEN CASTINGS

CORRESPONDENCE SOLICITED

THE STRICKLAND MACHINE CO.  
RICHMOND, VA.

## Improved Belt Conveyors



We manufacture improved belt conveyors of several styles, troughing the belt or running it flat, as conditions may warrant. These conveyors are economical of power, simple in design, capable of running 24 hours per day, and require little time or attention from anyone. There's no harm in writing us.

**H. W. Caldwell & Son Co.**

Chicago, Western Ave., 17th-18th St.

NEW YORK, Fulton Bldg., Hudson Terminal, 50 Church St.

## A CHANGE

From MINE RUN to

SEARLES

## WASHED NUT COAL

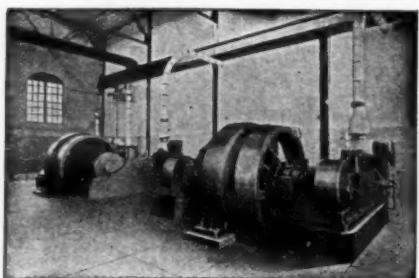
may clear up your steam  
trouble and let you push  
on to the front.

It's worth trying.

"THERE'S A REASON"

Alabama Consolidated Coal & Iron Co.

Birmingham, Ala.



## Ball Engines

For Electric Service

### Ball Engine Company

ERIE, PA.

## COOPER CORLISS ENGINES

Complete Steam Plants a Specialty

THE C. & G. COOPER CO.

BUILDERS

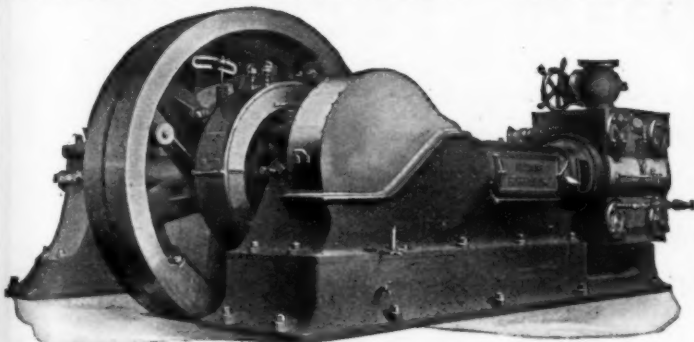
Home Office and Works

MT. VERNON, OHIO

Branch Offices: Atlanta, 560 Candler  
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New York, 1419 Bowling Green Bldg.;  
Boston, 201 Devonshire St.; Philadel-  
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Frick Bldg.; Chicago, 1539 First Nat.  
Bank Bldg.



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Harrisburg Foundry & Machine Works, Harrisburg, Pa.

BALTIMORE OFFICE  
Continental Bldg.

ATLANTA OFFICE  
Empire Bldg.

NEW ORLEANS OFFICE  
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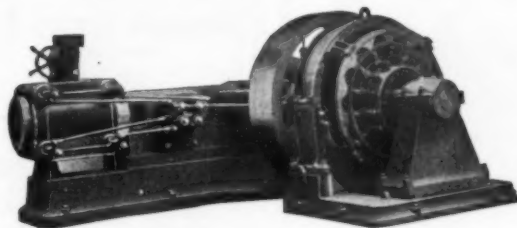
## Schofield Engines and Boilers

We make a specialty of RETURN TUBU-  
LAR BOILERS and ENGINES. They are  
particularly adapted for Saw Mills, Oil Mills,  
Cotton Ginning.

For Immediate Shipment, Portable Boilers  
and Engines, which are built for heavy duty.  
If you are contemplating the purchase of  
new Boilers and Engines, it will pay you to  
write us.

*We are manufacturers of Boilers, Engines,  
Towers, Tanks, Standpipes, Self-supporting  
Steel Stacks, Plate and Sheet Iron Work,  
Saw Mills, etc.*

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BRANCH OFFICE: 307 W. Trade Street, Charlotte, N. C.



**THE Cost of Generating Current** in your power  
plant is a large factor in the success of your business, and  
worthy of the most careful and painstaking consideration.

**Steam Engine Economy** enters largely into this cost,  
and profits depend upon how successful you have been in selecting  
and installing **ECONOMICAL ENGINES**.

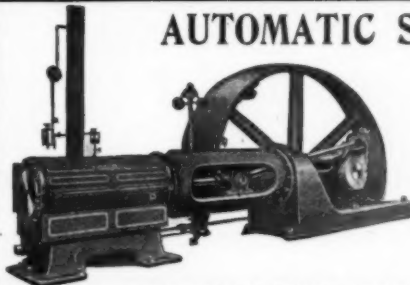
### Ridgway Four-Valve Engines

have established a record for **Extreme Economy**. They are  
a permanent and paying asset.

The RIDGWAY Direct and Alternating current generators are  
highly efficient, and have many strong points that appeal to buyers  
of high-grade power equipment.

**RIDGWAY DYNAMO & ENGINE CO.**  
RIDGWAY, PA.

## AUTOMATIC STEAM ENGINES



Simple and Compound.  
For Belt or Rope Drive.  
Direct Connected to Generator or  
Ice Machine.

Mill Gearing a Specialty

The I. & E. Greenwald Co.

720 East Pearl Street  
CINCINNATI, OHIO

New York Office, 180 Nassau Street

## RATEAU TURBINES

High Pressure Turbines

Low Pressure Turbines

MIXED FLOW TURBINES

1000 K. W. Direct Current Turbo Generators

Alternating Current Generators Turbo Blowers Turbo Pumps

**SOUTHWARK FOUNDRY & MACHINE CO.**

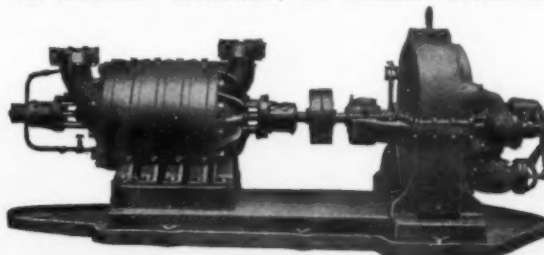
PHILADELPHIA, PA.

## AS CLEAN AS A WHISTLE

Have your heating pipes or condenser tubes become less  
efficient because coated with oil?

## TERRY TURBINES

need no internal lubrication, the exhaust steam is *clean*.



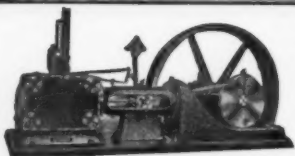
**THE TERRY STEAM TURBINE CO.**

Home Office and Works,  
Hartford, Conn.

General Sales Office,  
90 West Street, New York

District Agents { Charlotte, N. C., J. S. Cothran  
New Orleans and Houston, A. M. Lockett & Co.



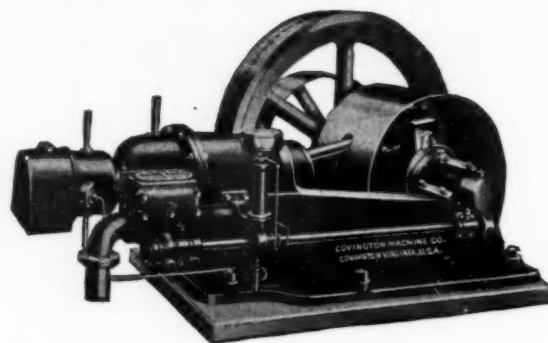
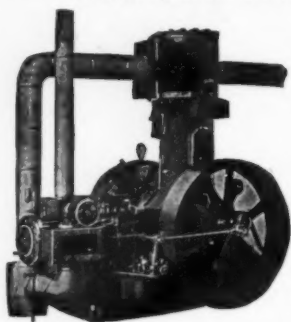


**CORLISS ENGINES**  
 Boilers of all Styles and Sizes  
**The Murray Iron Works Co.**  
 INCORPORATED FEB. 1, 1870  
 BURLINGTON, IOWA  
 ENGINE ON EXHIBITION IN THE BOURSE  
 PHILADELPHIA, PA.

**The Green Fuel Economizer Co.**  
**MATTEAWAN, N. Y.**

Engineers; Builders of Green's Fuel Economizers, Fans, Blowers and Exhausters, Steam Air Heater Coils, Waste Heat Air Heaters, Mechanical Draft, Heating and Ventilating and Drying Apparatus, Draft Dampers and Engines.

The American-Ball Angle Compound Engine  
**American Engine Company**  
 BOUND BROOK, N. J.  
 Southern Representative:  
 A. St. C. Dunstan, Auburn, Ala.



## Skilled Attendance not Required

**H** EAT the vaporizer cap by means of the oil or gas burner supplied with the Engine.

Give the oil pump a stroke, sending a charge of fuel oil into the vaporizer.

Then open the valve admitting compressed air into the cylinder, and the Engine is started.

### COVINGTON OIL ENGINES

are even simpler to handle than automobile engines, because they have no electric sparking devices, carburetors, or other delicate parts to get out of order. Little attention required after starting.

Positive mechanical lubricator supplies the wrist pin and cylinder; lubricant baths with a few oil cups complete the equipment. Each 100-h.p. requires 1½ gallons lubricant per ten-hour day.

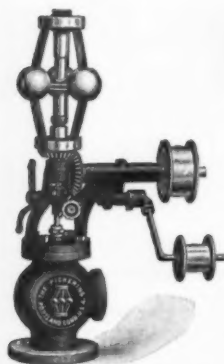
The fuel oil consumption is 13½ gallons for 100-h.p. for one hour. With fuel oil at 3c per gallon the fuel cost for 100-h.p. is 40c per hour, \$4.00 per ten-hour day.

These low operating costs with the correct and substantial construction of the Engines guarantee cheap power continuously. Always ready to run and built to operate at full load for many years. Low pressures. Slow speeds. Massive construction. No expensive shut-downs to absorb operating cost economies. Built for serious business.

Covington Machine Company. : : Works: Covington, Virginia.

B. D. POWLESON, Sales Agent - 4 Rector Street - New York

**COVINGTON OIL ENGINES**



For Steam Engines, Turbines,  
 Gas Engines and Mechanical Control.

## PICKERING "THE GOVERNOR WITHOUT JOINTS"

Directness of Action Gives  
 Greater Efficiency Maximum Durability

### BECAUSE—

Absence of joints not only insures closer regulation when installed, but equal efficiency under continued duty, for lost motion cannot result with absence of joints. Stability in Action and Durability in continued duty effects economy, whether Electric Light Service, Saw Milling, or Dredging and Ditching.

WIDE RANGE SPEED CHANGER  
 AUTOMATIC SAFETY STOP



**The PICKERING GOVERNOR COMPANY**  
 PORTLAND, CONNECTICUT, U. S. A.

# Westinghouse Steam Turbines for small power purposes

**The Commercial Advantages and Economies of turbine units, as secured in large power stations, are just as applicable to installations on a much smaller scale.**

Sixteen years' work in designing and building turbines of large capacities has given us a valuable store of knowledge that comes only through experience.

The points thus learned are incorporated in our line of smaller turbines, and that they are correctly applied is proved by the already highly successful performances of these turbines in driving A. C. Generators for Lighting and Power; D.C. Genera-

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They also give highly satisfactory and efficient service in driving Centrifugal Pumps, and Blowers or Exhausters for various purposes.

We are prepared to furnish turbines designed for High-Pressure Non-Condensing, High-Pressure Condensing, and for Low-Pressure Service.

In any size and for any purpose, you always get the best turbine for your own particular needs if it bears the name "WESTINGHOUSE."

Write nearest office for full particulars (Circular 505)

## The Westinghouse Machine Co.

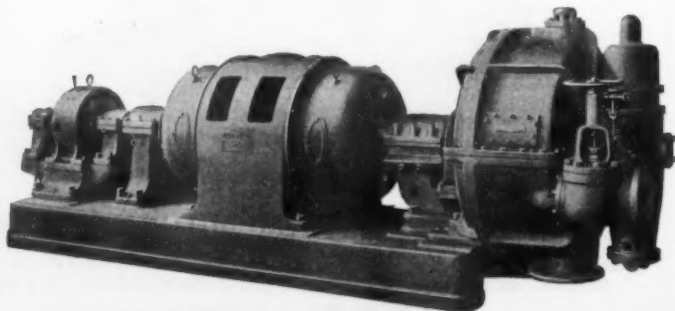
Steam Turbines, Steam Engines, Gas Engines, Gas Producers  
 Mechanical Stokers and Condensers,

New York, 165 Broadway  
 Chicago, 39 So. La Salle St.  
 Cincinnati, 1103 Traction Bldg.  
 Denver, Gas and Electric Bldg.

Pittsburgh, Westinghouse Building  
 Philadelphia, North American Bldg.  
 Cleveland, New England Bldg.  
 San Francisco, Hunt, Mirk & Co.

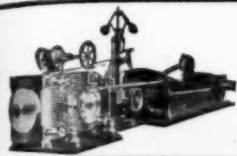
Boston, 131 State Street  
 St. Louis, Chemical Bldg.  
 Atlanta, Candler Bldg.

Mexico Compania Ingeniera, Importadora y Contratista S. A.  
 (Successors to G. & O. Braniff & Company), City of Mexico



100 KW Turbo Generator Set. AC With Direct Connected Exciter.



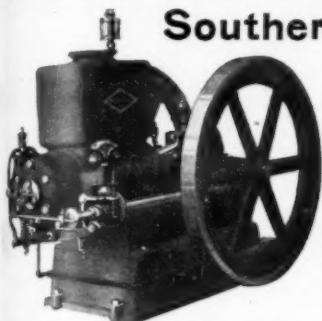


### The Griffith & Wedge Co.

Established 1840  
ZANESVILLE, OHIO, U. S. A.

Manufacturers of  
**The Ohio Corliss Engine**

Send for Catalogue.



### Southern Gasoline Engines

We make an improved heavy duty gasoline engine of all sizes for all purposes.

**Agency Contracts Still Open**

Write for Catalogues and full information.

**Southern Engine & Boiler Works**

Manufacturers

JACKSON, TENN.

### What Does Your Power Cost?

Merely make a rough estimate and then stop and consider how economical it would be for you to install

#### Fairbanks-Morse Oil Engines

(1 H. P. to 500 H. P.)

These engines will operate on kerosene, or low grade oil distillates costing as low as 2c. per gallon at the refinery.

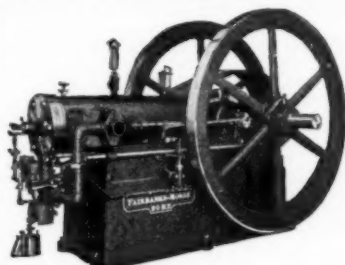
No question about their operating satisfactorily—we have been building them for years and they were not placed on the market until we proved them a success. Let us give you full information.

Write for Catalog No. 938DR.

**Fairbanks, Morse & Co.,**

Branches in Principal Northern Cities

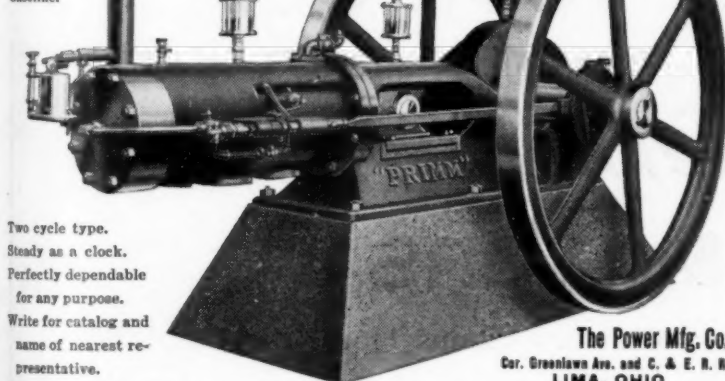
Atlanta, Ga., Jacksonville, Fla.,  
Richmond, Va., New Orleans, La.,  
Main Office: 900 So. Wabash Ave.,  
Chicago, Ill.



20 H. P. Type "N" Oil Engine

### THE PRIMM OIL ENGINE

OPERATES ON  
Crude, Fuel, Gas or Solar Oils, Distillate,  
Kerosene or Gasoline.

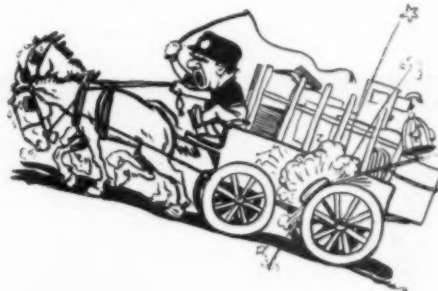


Two cycle type.  
Steady as a clock.  
Perfectly dependable  
for any purpose.  
Write for catalog and  
name of nearest representative.

**The Power Mfg. Co.**

Cor. Greenlawn Ave. and C. & E. R. R.  
LIMA, OHIO

That for Week—Our engines are built to run without repair bills.



### Are You Driving Up-Hill with the Brakes Set?

Are you hiring skilled labor and making the men work with poor light to act as a constant "brake" on the wheels? Inefficient illumination in a factory means inefficiency of production. It costs the employer money in spoilage and wasted time, for men can't work accurately and quickly with overstrained eyes.

Holophane Steel Reflectors eliminate all glare and shadows, and focus the light where it helps the operative finish the day's work at the same speed as he began. That means more output and more profit. And at the same time your lighting costs are cut down, for Holophane Reflectors are scientifically designed to give the most of the best light for the least money.

Investigate today.

### HOLOPHANE COMPANY

Sales Department

**NEWARK, OHIO**

New York Boston Philadelphia Chicago San Francisco London  
Holophane Company, Ltd., 62 Front St., W., Toronto, Canada

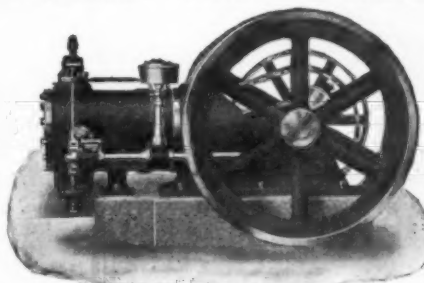
Radio



### Simplicity Is the Keynote in the BOGART GAS ENGINE



Vertical  
Positive  
Valves  
Perfect  
Ignition  
A  
Strictly  
High Class  
Engine  
Having Few  
Working  
Parts



Adapted to  
all classes of  
Service  
Made in all  
sizes and in  
several types  
Send for  
Illustrated  
Bulletins  
MS

**Bogart Gas Power Engineering Co.**

COMPLETE GAS POWER PLANTS

MAIN OFFICE

BUFFALO, N. Y.



### There's an OTTO Engine for Every Power Need

If you require from 40 to 100 horsepower, we offer you the OTTO Producer Gas Engine and Suction Gas Producer. One lb. to 1½ lbs. anthracite pea coal will produce a horsepower one hour. If you use steam or electric power you are paying from 30 to 50% more than you should.

Otto Gas and Gasoline Engines are widely used to take care of the peak load in inadequate steam plants. The special electric type and Otto Governor secures such close regulation that we guarantee the variation in voltage will not exceed 2% under changing load from ¼ to full load.

Engines for pumping—hoisting—portable outfits for contracting work driving air compressors, etc.

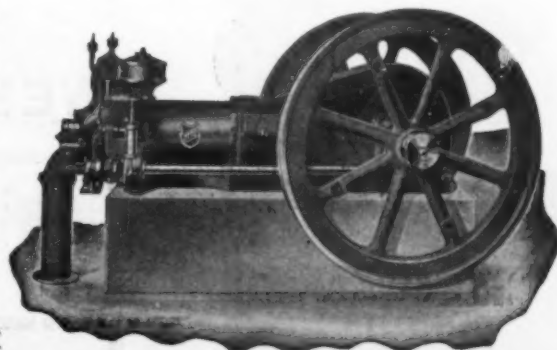
**Otto Engines are higher grade than ever, but somewhat reduced in price.**

You get the benefit of our increasing volume of business and improved manufacturing facilities. All sizes 1 to 120 horsepower.

Tell us about your power troubles—we have solved the question satisfactorily for over 100,000 OTTO users. Write today for our literature.

SEVERAL GOOD TERRITORIES OPEN FOR DEALERS

**THE OTTO GAS ENGINE WORKS** 8221 Walnut St.  
Philadelphia, Pa.



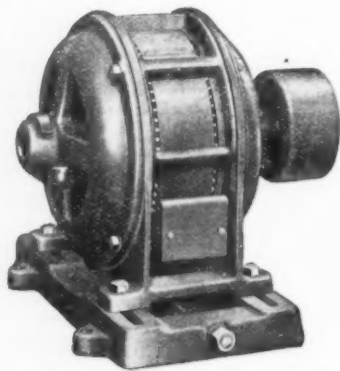
**A SATISFIED CUSTOMER IS ONE OF OUR BEST ADVERTISEMENTS**

and this one is more than pleased with the service of his generator. This installation is in the Power House of one of Ohio's large manufacturing concerns and since it was put in 7 years ago this generator has never given any trouble.

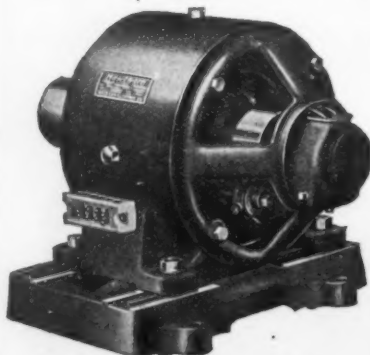
Almost any Salesman can satisfy your Purchasing Agent with claims, prices and guarantees but it's the Engineer, who must run the machine years after these things are forgotten, who knows whether you got your money's worth or not.

When you need a Generator you can't do better than ask the opinion of any engineer who ever ran a Fort Wayne. If you want to know why he is so enthusiastic about our machines send for Bulletin 1109

**FORT WAYNE ELECTRIC WORKS**  
 1617 BROADWAY      OF GENERAL ELECTRIC COMPANY      FORT WAYNE, IND.  
    "WOOD" SYSTEMS



Induction Motor Type "SL" 2 H. P.  
and upwards, for Alternating Current



Type "IVC" Motor from 15 H. P.  
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# *Western Electric* TRADE MARK MOTORS

wherever you need power to operate Pumps, Hoists, Concrete Mixers, Machine Shop, Saw Mill.

They will make money for you by doing more work and better work than any other motive power.

You will find them economical and reliable under the most severe conditions of service.

There is a Western Electric Motor suitable for every power need. In all standard speeds. For all commercial circuits.

We make overnight shipments from the house nearest to you.

Write today to Dept. 56M and give us details of your machinery—we will advise you to your advantage.

## WESTERN ELECTRIC COMPANY

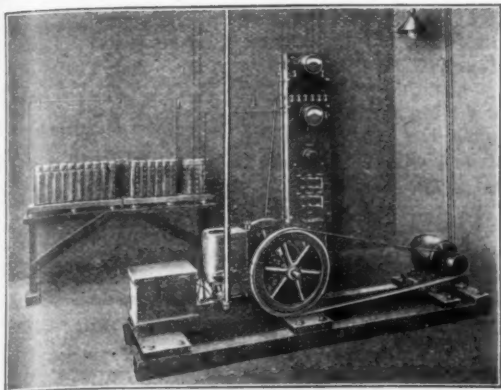
Manufacturers of the 6,000,000 "Bell" Telephones

"SAVE TIME AND FREIGHT"		New York	Atlanta	St. Paul	Dallas	Los Angeles	"SAVE TIME AND FREIGHT"	
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		Boston	Cincinnati	Kansas City	San Francisco	Portland		
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Address the house nearest you

"TELEPHONE OUR NEAREST HOUSE" **EQUIPMENT FOR EVERY ELECTRICAL NEED** "TELEPHONE OUR NEAREST HOUSE"





A plant occupies only a small space. You can put it in a corner of your cellar or in some small out-building. With gasoline at 16 cents per gallon, one tenth of a cent's worth will light a 16-candle power lamp one hour. The very best form of illumination at very low cost.

## Electric Lighting Plants for Every Purpose

Farms, factories, summer homes, etc., although situated beyond the reach of Central Stations, are no longer deprived of the advantages of electricity. Small and inexpensive electric lighting plants can now be furnished which give an absolutely reliable service and which can be easily installed and operated by nearly any one.

A complete plant consists of a small gas engine, dynamo, switchboard and storage battery. Electric lights are available any time of the day or night—a full 24-hour service—by only an occasional running of the engine to charge the battery.

### The "Chloride Accumulator"

furnished with these plants is the same type of battery used by the electric lighting companies in nearly all the large cities, as well as being the standard battery with the Western Union and Postal Telegraph Companies and the Bell Telephone Companies.

Any Sales Office will send you a copy of our book on "Small, Electric Lighting Plants," which will give you complete information. Write for it today.

## THE ELECTRIC STORAGE BATTERY CO.

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PHILADELPHIA, PA.

1911

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## Plan a Lighting System That Makes Scientific Management Possible

A good lighting system is essential to scientific management because in factories and mills artificial light is used from 10 to 40% of the working hours.

Under actual test good illumination increased production 10%, in addition, there was a marked improvement in the quality of the work.

Good illumination also lessens errors, spoilage, accidents and shut-downs, therefore quality and quantity is still further increased.

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is especially recommended because it gives a brilliant well diffused light over large areas, and because of its long electrode life and great economy. On a multiple circuit this lamp will burn for over 100 hours without attention, and even then it is necessary to change only one electrode. The novel method of ventilation keeps the globe clean throughout the long electrode life. This lamp is recognized as one of the most powerful lighting units known, and can be placed in any standard commercial circuit. It is substantially constructed and reliable in service.

Adequate illumination is engaging the attention of every thinking employer. The services of our experts on scientific illumination are at your command to assist you in your plans for a better system of lighting.

Give your employees an opportunity to become 100% efficient. Write for bulletin 4882 which describes this lamp in detail.

## General Electric Company

Principal Office: Schenectady, N. Y.

**1¢ a burning hour 100 candle power**  
**Pintsch Mantle Light**

**THE SAFETY CAR HEATING AND LIGHTING CO.**  
2 RECTOR ST., NEW YORK

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TO OUR NEW BUILDING  
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**"Tonic" Lamp Posts**  
FOR ELECTRICITY OR GAS  
Write for Particulars.

### CHECK UP THE WATCHMAN BY USING A HOLTZER MAGNETO CLOCK



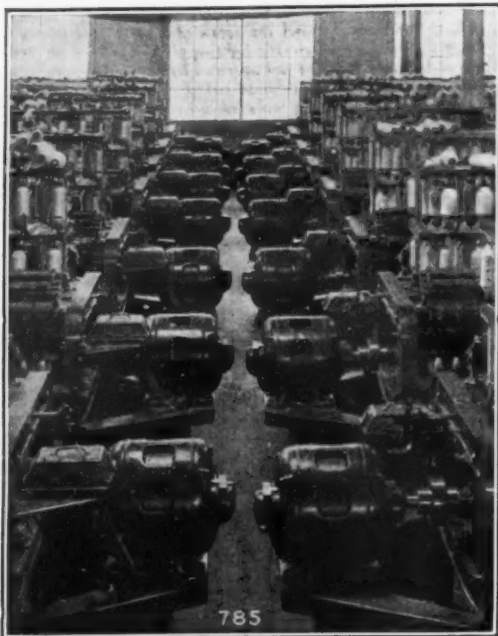
A watchman's clock that is a sure check, as it punches an undisputable record.

Reduces insurance cost.

Send for Bulletin 152R

**The Holtzer-Cabot Electric Company**  
Brookline, Mass., and Chicago, Ill.



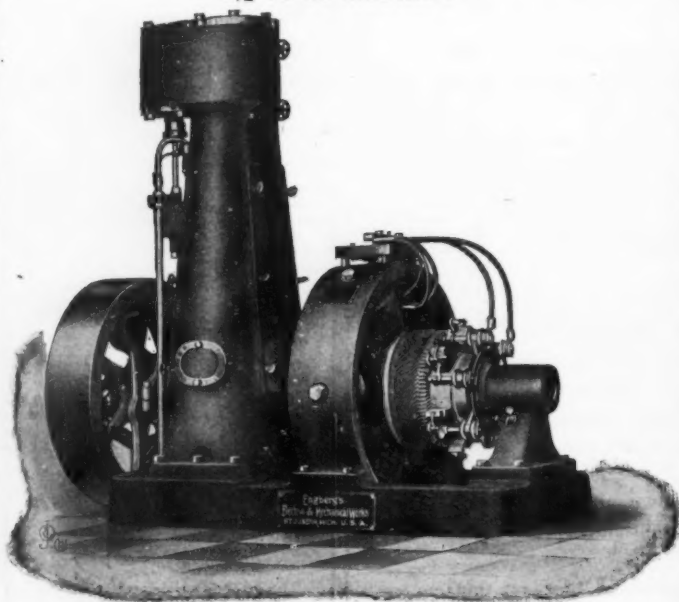


**COMPARE THIS**  
WITH THE USUAL MEDLEY OF BELTS AND SHAFTING  
of mechanical drive.

Crocker-Wheeler motor-drive means primarily—Better light—Greater cleanliness—Fewer damage suits from injured employees.  
It also means Greater output and Lower maintenance charges.  
It will pay you to let us tell you why.

**CROCKER-WHEELER CO.,** Ampere, N. J.  
Birmingham Baltimore Charlotte Washington, D. C. Philadelphia  
Local Selling Representative: Tel.-Electric Co., Houston, Texas

**The "ENGBERG"**  
Direct Connected Generating Sets  
2½ TO 50 KILOWATT



Simplicity, durability and successful operation gives distinction to the Engberg Generating Sets. They are exceptionally economical and reliable. Every machine is especially guaranteed as to the rating, stability and performance.

Send for descriptive bulletins, prices and testimonials.

BUILT IN EITHER STEAM OR GASOLINE OPERATED

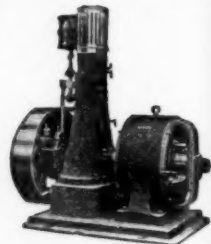
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Electric and Mechanical Works  
VINE ST., ST. JOSEPH, MICHIGAN, U. S. A.

**50 TO 500 LIGHTS**

This outfit will provide 50 to 500 lights in your factory, house, farm or barns, and power for driving any motors required. Possibly the cheapest and most reliable unit on the market.

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**Incandescent Lamps**

Unexcelled for Life, Brilliance or Uniformity

**Motors and Dynamos**

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Embodying to the highest degree Fuel Economy, Easy Steaming Qualities, Safety, Low Cost of Maintenance and Large Overload Capacity.

Manufactured by

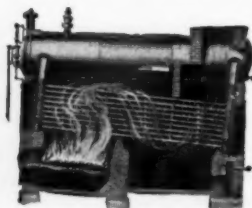
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Pumps, Heaters, Injectors, Engine Supplies and Repairs for Mills, Hotels, Public Works. Try LOMBARD IRON WORKS, Augusta, Ga.

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PORTABLE AND HORIZONTAL TUBULAR  
BOILERS

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**Water Tube Steam Boilers**

STEAM SUPERHEATERS MECHANICAL STOKERS

WORKS—BAYONNE, N. J.

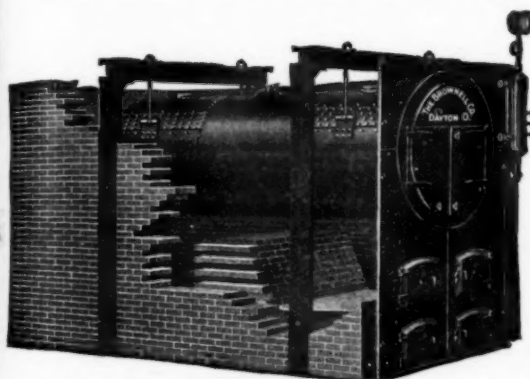
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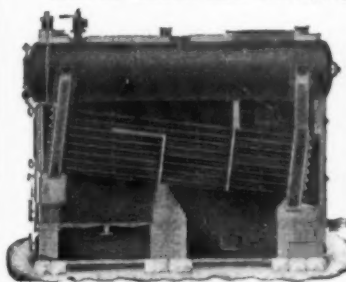
Contractors  
for complete  
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**A Record of Twenty Years of Reliability****"GEARY" WATER TUBE BOILERS**

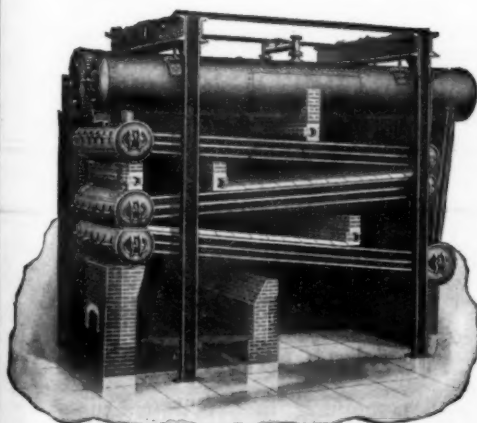
for 20 years have stood the test, and are offered to meet the demands of the most exacting engineering practice. Designed and built on correct and thoroughly proven principles to give the maximum of safety, economy, durability and accessibility for cleaning and repairs. Units 30 to 650 horse power.



Send for illustrated booklet about "Geary" boilers.

Oil City Boiler Works  
OIL CITY, PENNA.

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**NO EXPERIMENT****VOGT****WATER TUBE BOILER**

You are not buying an experiment when you get one of our boilers. It was proved that it is unquestionably without an equal as a steam producer. Free from objections common to the general run of boilers. Constructed by expert workmen of

the very best material. Safe, sound and efficient. We will gladly go into details with all interested—prospective plants and those wanting to increase their present boiler efficiency.

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Louisville, Ky.

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**BOILERS**

SPECIAL PLATE AND TANK WORK

Offices—No. 719 Hennen Bldg., New Orleans, La.; Praetorian Bldg., Dallas, Texas.

Main Offices and Works—Chattanooga, Tenn.

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HIGH-GRADE

**BOILERS**

Stand Pipes, Self-Supporting Stacks, Tanks, Towers, all kinds of Structural and Plate Iron Work, Boiler Fronts, Grate Bars, Kiln Wheels, all kinds of Castings made to order.

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**ALLEGHENY STEEL CO.**

Manufacturers of

STEEL AND CHARCOAL IRON

**"RELIANCE" BOILER TUBES**

Steel Plates and Sheets

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**HOW ABOUT IT?**

Condenser pressure 240 lbs.; no oil; no "frost"; rod temperature 300 Fahr.

If you'd like the complete story of how this packing ran four months under these conditions in a big Brooklyn, N. Y. ice plant—without rotting, or melting, or blowing, or adjusting or stopping the compressor—and is in there today running as sweet as ever—drop us a postal and we'll write



"BETTER USE HUHNS"

AMERICAN HUHNS METALLIC PACKING CO. 414 East 32nd St., New York City



## Here are some pithy extracts

from letters written by users of

# THOMAS ELLIPTIC GRATE BARS

Coming from firms experienced in business and the operation of plants instead of from us, these should have special weight with those interested in power plant economy.

"Have had a set in constant and severe use in furnace of 150 H. P. boiler for about four months. See no signs of usage."  
MASSEE & FELTON  
LUMBER CO.,  
Macon, Ga.  
Sash, Doors and Blinds.

"At your suggestion equipped my two boilers with Thomas Elliptic Grate Bars instead of buying a third boiler. I do not need the other boiler, as I have plenty of steam. Have never had to shut down for steam since."  
R. S. KELL, Tifton, Ga.  
Lumber and Shingles.

"Apparently there is no wear out to them. Their operation is most satisfactory. We get more steam than we can use and never have to rake and clean them. Refer any who doubt them to us."  
J. M. YOUNGBLOOD & CO.,  
Valdosta, Ga.  
Lumber, Flooring, Ceiling, etc.

"I have watched the bars closely. Like them better than any other bars. The longer I use them the better I like them. Satisfied they save fuel on account of the cleaning quality."  
GUTHMAN LAUNDRY  
& DRY CLEANING CO.,  
Atlanta, Ga.

"I could scarcely keep steam with my 25 H. P. boiler. After installing a 15 H. P. engine in addition to other, have ample steam for this also and some to spare."  
R. Q. WHITTLE,  
Enigma, Ga.  
Yellow Pine Lumber.

"Thomas Elliptic Grate Bars are everything you claim. Are steaming our boilers with less fuel and at least 50 per cent. more ease. Absolutely satisfied."  
HAHIRA GIN CO.,  
Habira, Ga.  
Cotton Gins and Grist Mills.



This is one of the styles.

Thomas Elliptic Grate Bars are made for power plants generally. Will burn any kind of fuel. Made with every style of draft openings. Self-cleaning. Make no slag clinkers. Will not sag, warp or break.

Always satisfactory. Fully guaranteed. Let us look into your situation. Maybe we can effect a valuable economy for you.

## Thomas Grate Bar Co.

Birmingham, Alabama

Branch: Valdosta, Ga.

## FOSTER SUPERHEATERS

Change a Losing Plant  
to Paying Investment

No steam plant can reach its maximum of fuel economy without the use of superheaters—a broad but true assertion. Often by installing our superheaters a wasteful plant running at a loss may become a paying investment. Boilers not designed for high pressure or old boilers can be fitted with them and rendered serviceable.

The Foster Superheater has many advantages in the way of saving fuel, of increasing efficiency of engines, boilers, pumps, etc., and of general economy, and we want the opportunity to lay its merits before all steam plant owners.

**Power Specialty Company**

111 Broadway, New York

Southern District Office, Brown-Marx Building  
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## Worthington Recording Liquid Weigher



Measures Liquids by Weight  
Affords Accuracy Without  
Regard to Temperature

No Waste—No Maintenance  
Cost

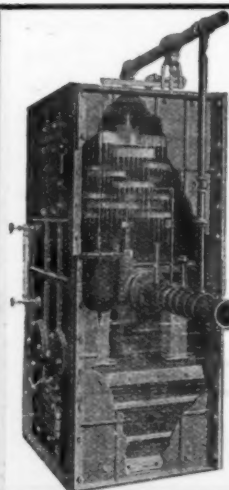
Invaluable for Handling Hot  
Feed Water, Fuel Oil, Sugar  
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Send for Catalogue W 184-29

**HENRY R. WORTHINGTON**

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Offices in all large cities  
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## The Organ Open Feed Water Heater and Purifier

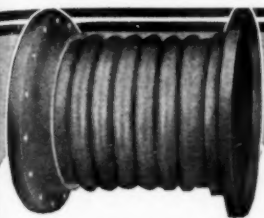
combining in one apparatus—  
Feed Water Heater and Purifier,  
Oil Separator, Drip Receiver and  
Expansion Tanks.

The simplest and most economi-  
cal Feed Water Heater.

Write for Booklet.

**The Exeter Machine Works**  
PITTSBURGH, PA.





Our patented joint which insures equal distribution of expansion on each corrugation.

## Pipe Troubles Can Be Eliminated

by the use of

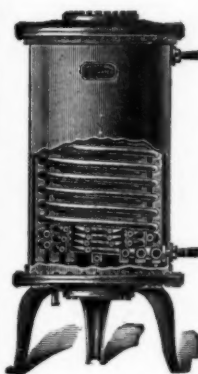
**Badger's  
Copper Expansion  
Joint**

Will take care of the expansion in lines of steam pipe. Will absorb vibration between engine and piping.

WRITE FOR FULL  
PARTICULARS

**E. B. Badger & Sons Co.**  
63-75 Pitts Street Boston, Mass.

## WHAT DOES 2,000,000 Horse-power Mean?



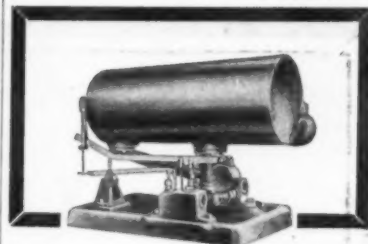
WHEN we say 2,000,000 horse-power of National Feed-water Heaters are in daily use, it means that despite the strivings of competitors in advertising and pushing their heaters, despite cunning imitations, the National Feed-water Heater is holding its own.

Have you ever heard of one's being dissatisfied, and may we not send you the names of some users, so you can get their opinions based on actual usage?

**The National Pipe Bending Co.**

97 Lloyd Street  
NEW HAVEN, CONN.

**The National Feed-water Heater  
IS HOLDING ITS OWN**



## "Detroit" RETURN TRAPS

1911 Model

Keep steam lines free of condensation, automatically returning it to the boiler hot without pumping.

Save 90% of the steam required to operate a pump.

Why "cool down" the condensation to accommodate a pump? It costs money to heat feed water.

Condensation is the best kind of feed water.

By using "Detroit" Return Traps you put condensation into the boiler at practically the same temperature at which it is condensed. Not a drop is wasted. None of the heat is lost.

Boiler Feed Pumps are good things for the coal dealer.

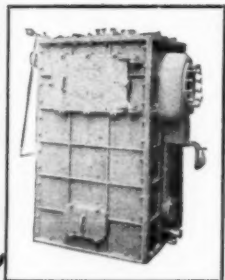
"Detroit" Return Traps are good things for the user.

Where shall we mail trap book No. 266-MR? It is brim full of information valuable to operators of steam plants.

**AMERICAN BLOWER COMPANY**  
DETROIT, MICH.  
U. S. A.

## ALBERGER PUMP AND CONDENSER COMPANIES

140 CEDAR STREET, NEW YORK  
See Our Special Announcement First Issue Each Month.



## BLAKE KNOWLES OPEN FEED WATER HEATERS

Increase Boiler Efficiency

Write for Bulletin BK847-29

**The Blake & Knowles STEAM PUMP Works**

Works: East Cambridge, Mass.  
New York Office: 115 Broadway

B131.1



## HOPPES FEED-WATER HEATERS

Not only heat and purify the feed-water, but do it more thoroughly than others because they have a larger heating and lime-catching surface and bring the steam and water into direct contact in the most effective manner. Guaranteed in every respect. Let us send you our Catalog and further particulars.

HOPPES MFG. CO., 97 Larch St., Springfield, O.



## The Otis Tubular Feed Water Heater

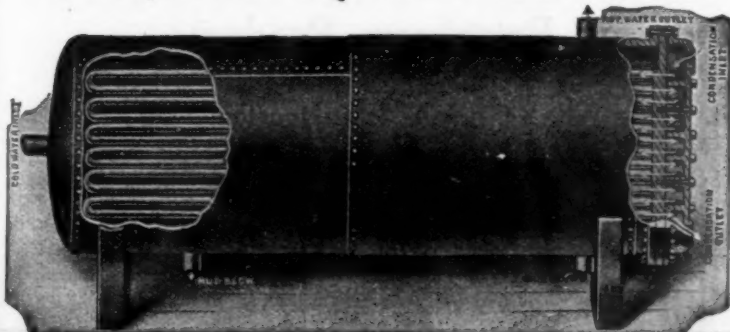
Oil Separator and Purifier

Is guaranteed to deliver the water to the boiler at boiling temperature (210 to 212 degrees). It will also extract the oil from the exhaust, so that the steam after passing through the heater may be used for other heating purposes and the condensed water returned to the boiler without any additional elimination.

Give the Otis a trial, and if you don't find it satisfactory we will pay the freight and carriage both ways.

**The Stewart Heater Co., 2 Norfolk Ave. Buffalo, N.Y.**

## A NEW KIND OF FEED WATER HEATER



**THE GLEANER**  
TRADE MARK

In a great many instances the exhaust from the engine is insufficient to heat the feed water, or it must be used for other purposes. It is for such cases that **THE GLEANER** was devised. Besides using the engine exhaust, it uses waste heat from heating systems, paper machines, dye-tubs, etc., formerly considered valueless. **The Gleaner** saves every degree of heat which is contained in this waste water and transfers it to fresh water. Let us tell you more about it.

**THOS. McADOO, 125 N. 4th St., PHILA., PA.**

(I. B. DAVIS & SON, Makers, HARTFORD, CONN.)

# VALUE vs. PRICE IN LUBRICATION

The difference in price or cost per gallon between an ordinary oil and an extra good lubricant is insignificant; yet the difference in results obtained is of great importance. The proper use of good lubricants throughout the plant has a far-reaching effect in the way of increased efficiency and economy, compared to which the cost of the oil appears small. With these facts in mind we solicit your employment of

## TEXACO LUBRICATING OILS

A distinct saving on maintenance charges and fuel accompanies the installation and proper use of Texaco Lubricants in the plant.

These oils have received that additional care and extra regard for quality in their refining that gives them an efficiency that is out of the ordinary.

The severest conditions only serve to bring out their superiority and they are money and "trouble" savers at all times. Texaco Lubricants are economical not because they cost less but because they give more.

## THE TEXAS COMPANY

Manufacturers of All Kinds of Petroleum Products

New York

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**GALENA - SIGNAL OIL CO.**

FRANKLIN, PA., U. S. A.

Leading Railway Lubricating and  
Illuminating Oils of America

GALENA COACH, ENGINE and CAR OILS, and SIBLEY'S  
PERFECTION VALVE and SIGNAL OILS  
are standard the world over.

ELECTRIC RAILWAY LUBRICATION A SPECIALTY

Guarantee Cost.

Expert Service.

S. A. Megeath, President.

**Which Is Better Proof?**

Theory or Fact? Your answer to this question also answers the question of what lubricant you will use on your engine.

Will you buy some "just-as-good" lubricant, because some theory seems to prove that it *ought* to be a good friction reducer?

Or will you spend your money for a lubricant that you *know* to be good? One that has been thoroughly tried and proved?

**ALBANY GREASE**

ALL LUBRICANT—NO WASTE

is first, last and above every other lubricant on the market, of absolutely *known* worth.

Don't keep on using the wrong lubricant in the wrong place. Send for a free copy of our new book, "Economic Lubrication," and get straightened out.

**Albany Lubricating Co.**

Adam Cook's Sons, Proprietors

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REFINERS OF

Oklahoma and Texas

**PETROLEUM**

(HIGH GRADE)

Engine Gasoline  
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OUR KEROSENE AND GASOLINE  
IS MANUFACTURED FROM  
HIGH GRADE OKLAHOMA CRUDE OIL

**LUBRICATING OILS**

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HIGH VISCOSITY

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We make a Specialty of Heavy Oils  
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**The . . . OILS Robinson**

"they lubricate most, and outlast other oils"  
HIGH GRADE CYLINDER, ENGINE, SPINDLE, DYNAMO OILS  
Oils for all types of Machinery  
GREASES  
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**"Gibraltar" Sheet Packing and Gaskets**

TRADE MARK REGISTERED

- Will not harden or burn under the severest heat.
- Will not blow out under the highest pressure.
- Will withstand the action of oils, ammonia and alkalies better than any other packing made.

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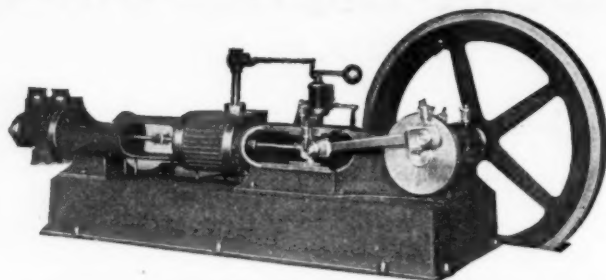
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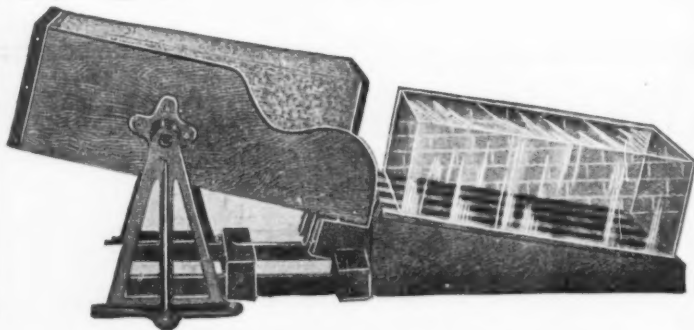
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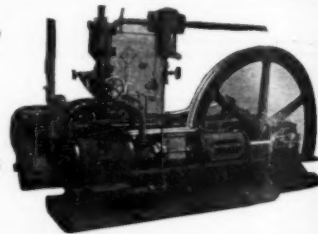
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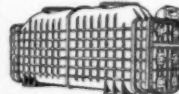


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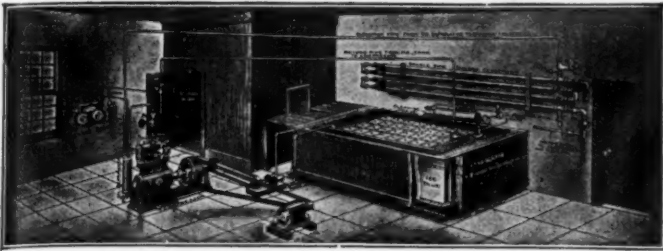
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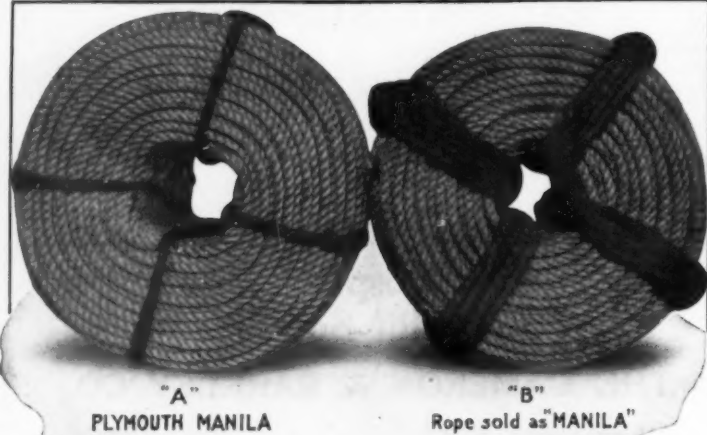
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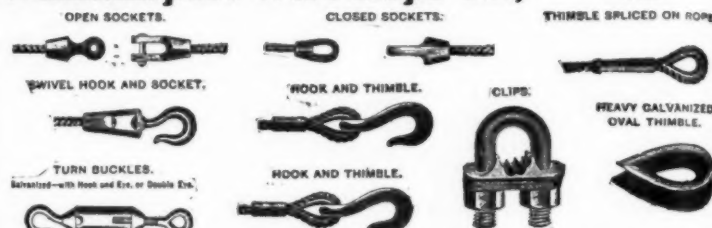
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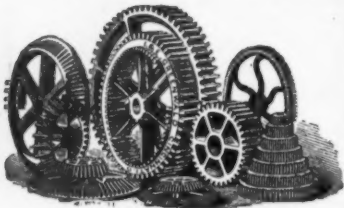


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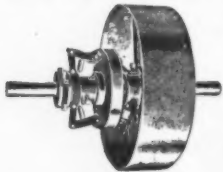
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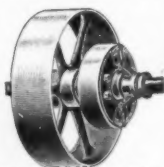
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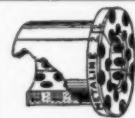


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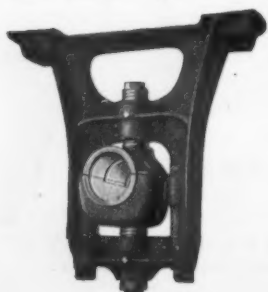
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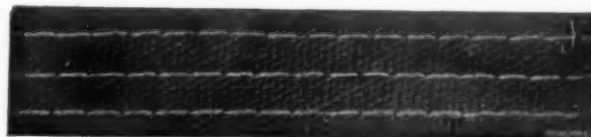
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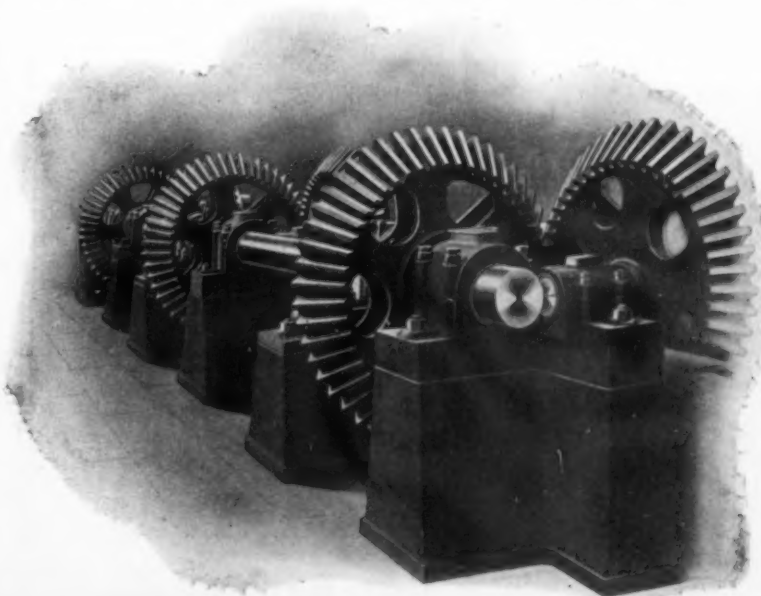
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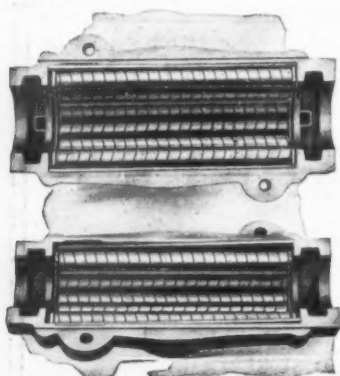
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The bearing is assembled with right and left spirals alternated. The rollers being tubular, they act as reservoirs for oil, and the alternated right and left spirals circulate the oil continuously throughout the entire bearing. These spirals also take up and retain within the rollers any grit or

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The actual saving of power is demonstrated by numerous tests made under all conditions of load and speed, and in all classes of equipment averages 20 per cent. With this as a basis, and figuring on the proper cost of power, we have found that the extra cost of the roller bearing will usually be returned in the first year's operation by the saving of power alone.

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The statements made below are taken at random from hundreds of testimonial letters received from large users of Hyatt bearings.

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The record of the Hyatt Shafting Box is unapproached by that of any other anti-friction bearing on the market.

#### Conclusion.

The Engineering Department of the Hyatt Roller Bearing Company is at the command of any manufacturer desiring to reduce his power consumption or increase his equipment without adding to his power-generating plant. We invite those interested to write for our illustrated Bulletin 400A, which contains authenticated records of various tests of Hyatt Shafting Boxes made in the plants of large manufacturing corporations.

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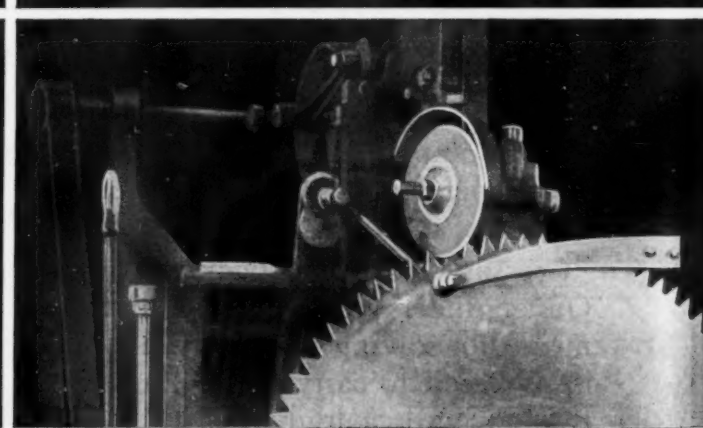
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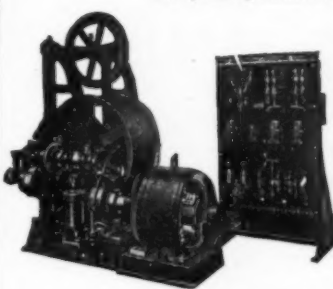
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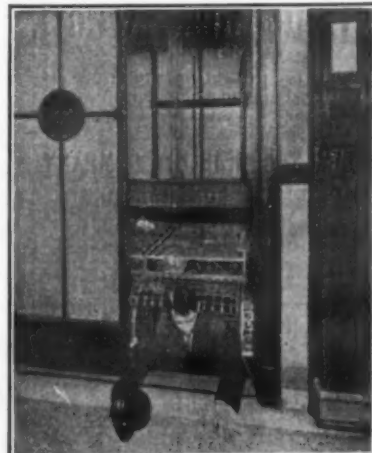
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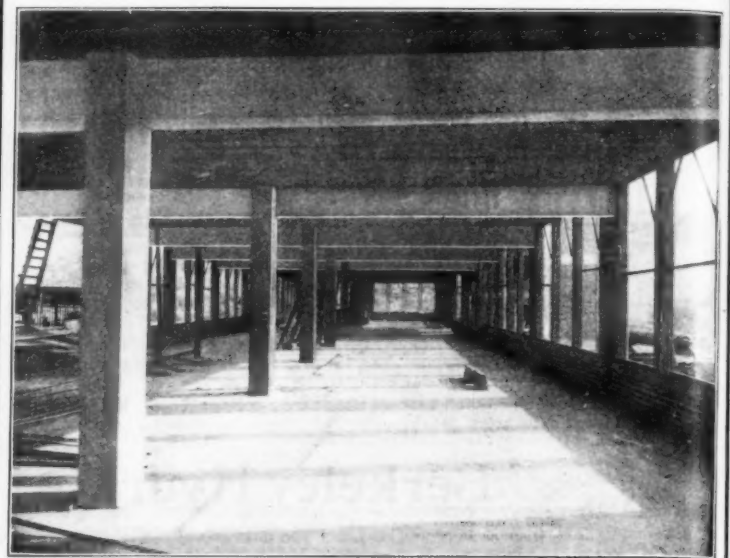
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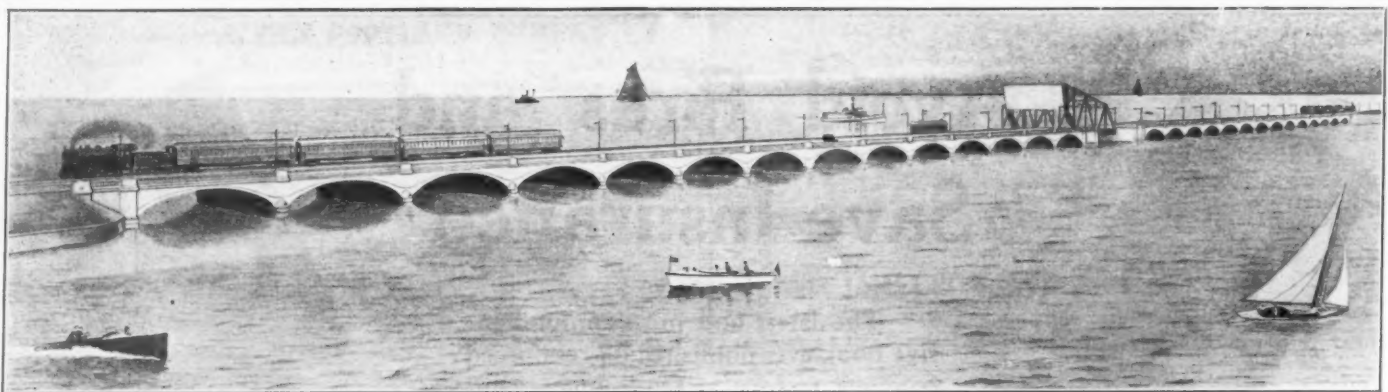
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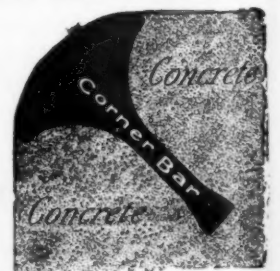
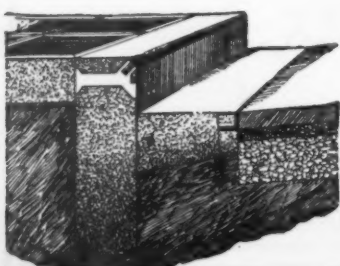
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ARCHITECTS are invited to read pages 242-243 "Sweet's Index"

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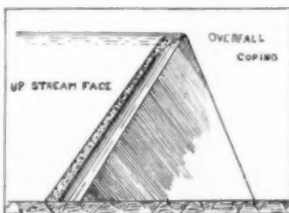
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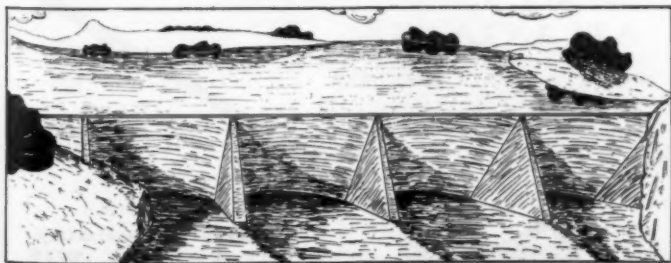
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**Beams of Gladness**

While the material we carry in stock is beams of steel, we will do our part to make them what you want.

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The explanation is that a Doherty Kiln is not a cheap makeshift, but a scientifically designed, economical lime-making machine.

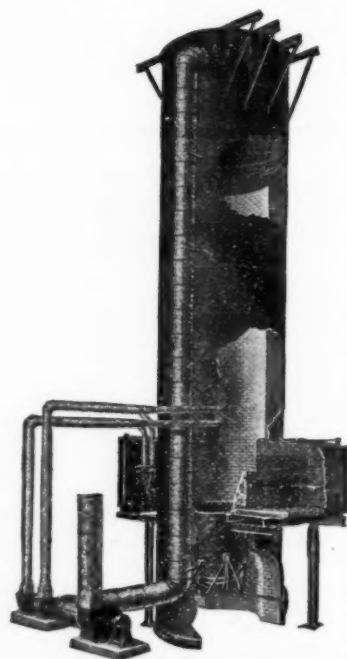
It uses heat that other kilns waste—and uses it in such a way that the lime is never over-burned or under-burned but is always just right.

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Time was when the Southern contractor had to go to New York or Chicago to SEE what he was buying. That's changed now. In our Atlanta warehouse, address given below, we carry the biggest assortment of contractors' machinery that has ever been stocked South of the Ohio River—not only a complete line of

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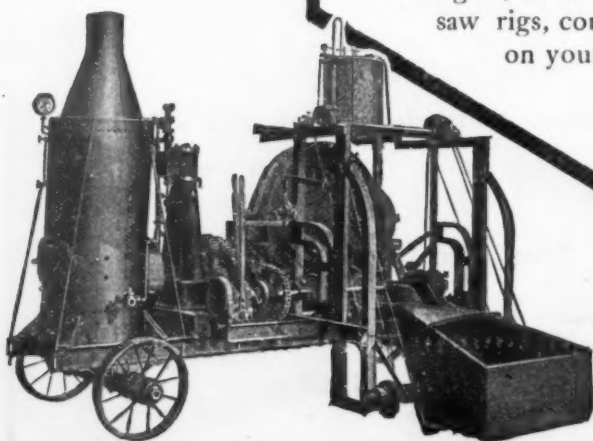
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CITIES OF THE  
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with Steam  
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# M-C

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Enables you to replace 1 segment as easily and QUICKLY AS YOU'D FIT A NEW  
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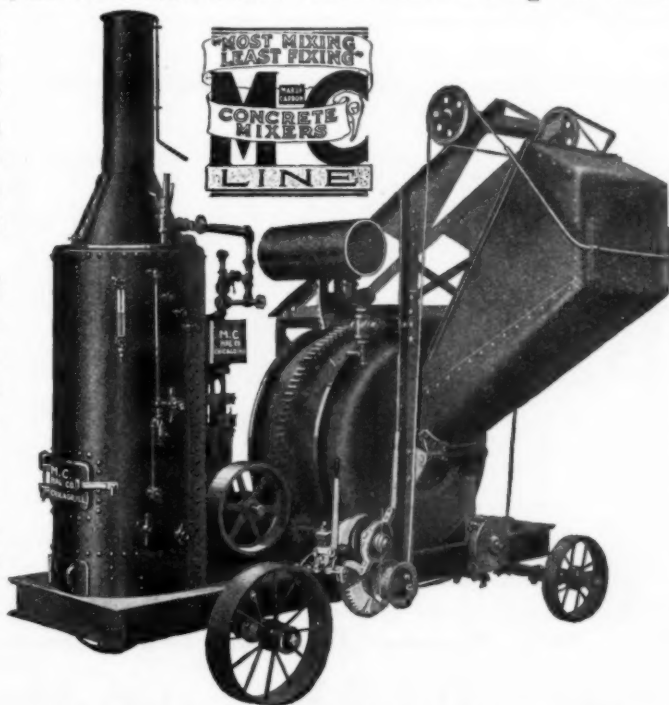
are rapidly learning what the North has paid hundreds of thousands of dollars to find out  
by tedious experience, namely—that whereas all previous types of concrete mixers have  
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M-C RELIA-  
BILITY counts  
because *the faster*  
*you make concrete*  
(of a thoroughly  
reliable sort) the  
faster *you make*  
*money.*

M-C MIXERS  
"DON'T DE-  
LAY THE  
GAME" and  
the mix is  
perfect.

(never varies)

*"Most Mix-  
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THE CUT  
SHOWS ONE  
OF THE NEW  
MODELS, M-C  
LINE (non-tilt  
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power and  
*improved*  
*Side-  
Loader.*  
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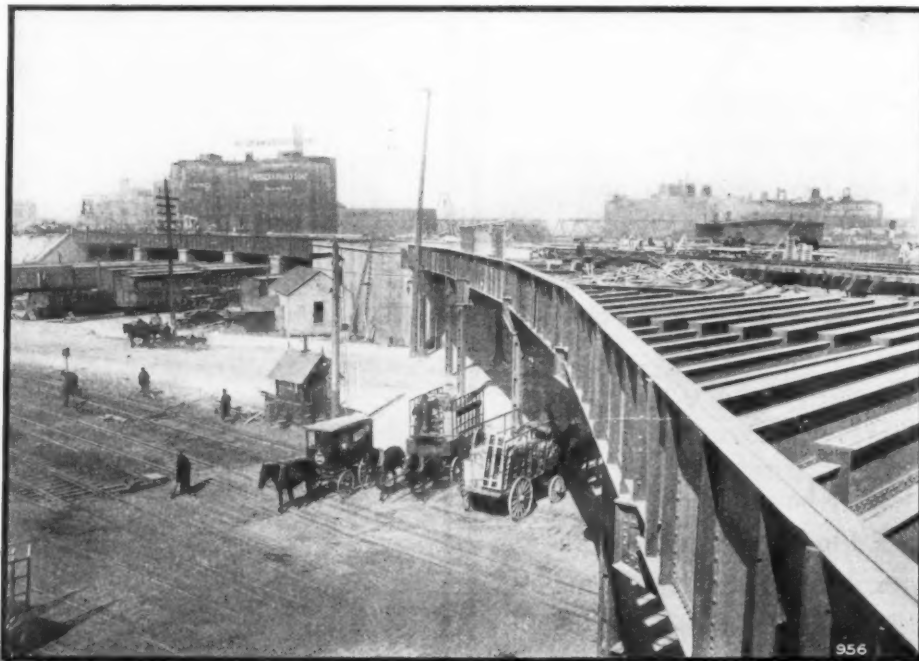
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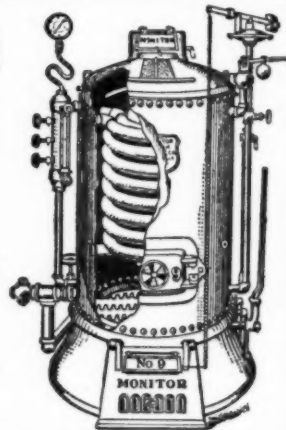
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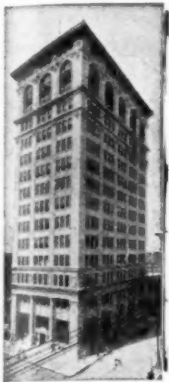
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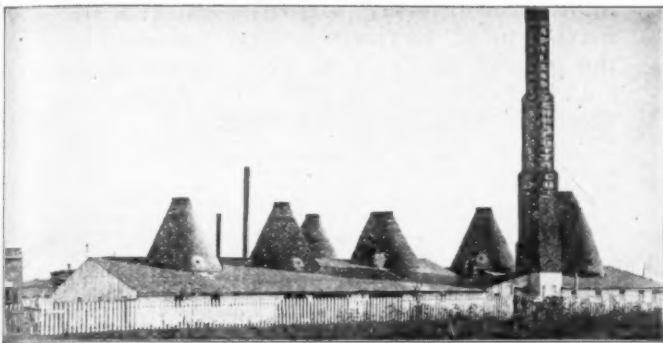
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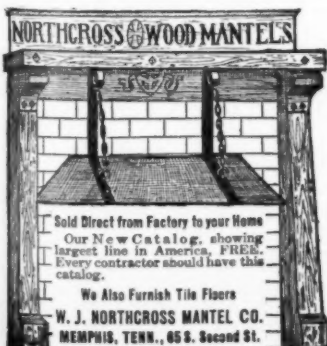
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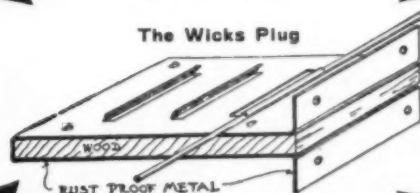
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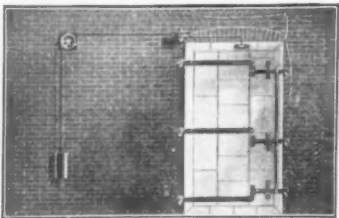
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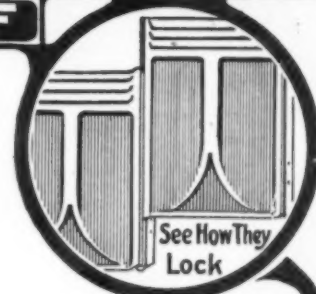
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Burmite Built-Up Construction.

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Strength, Beauty and Service.

Guaranteed for 10 Years Without Coating or Painting. It has superior Fire-  
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costs less, lays smoother, looks nicer. Eminently satisfactory for cover-  
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If so many Southern manufacturers, such as American Agricultural Chemical Company, Savannah, Ga.; Savage Distilling Company, Weverton, Md.; National Biscuit Co., Charlotte, N. C., have all found NEPONSET PAROID ROOFING so well adapted to their purposes, is there any reason why you wouldn't?

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## SLATE BLACKBOARDS

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Black-Green-Red-Purple  
Quotations delivered anywhere  
"The Highest Standard of Quality" our motto  
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With Improved "Lock That Locks"  
Watertight — Fireproof — Durable — Economical  
Best and Cheapest Made By

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### Double-Interlocking ROOFING TILE



A clay tile not affected by cold or heat, nor by acids, gases or fumes.  
The deep double lock insures a water-tight roof.  
Furnished in natural red or glazes.

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### "MAGNET BRAND METAL ROOFING"

guaranteed for maximum service

#### BECAUSE

it is specially made according to strict specifications, based on the hardest use any roof can be subjected to. We know sheet metal, and we know roofing; and "Magnet Brand" is result of 20 years' experience.

WE MAKE EVERYTHING IN SHEET METAL

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The Cincinnati Sheet Metal & Roofing Co.  
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## Red Oxide of Iron Paint

Our Red Oxide of Iron Paint is unexcelled for tin, iron and shingle roofs, railroad cars, bridges, barns, and any place where protection from the weather is desired. It is used by many of the large carriage and wagon manufacturers and paint grinders in the United States.

Let us send you a sample with prices.

Chattanooga Paint Co.

Chattanooga, Tenn.

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We've put ourselves in the user's place and are now making a prepared gravel roofing which fulfills all requirements. 'Twill pay you to look into its merits.

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### Carey's Flexible Cement Roofing

When Carey's Roofing is specified and used, roof quality, durability and satisfaction are assured. Its

#### Standardized Construction

is recognized everywhere—proved by twenty-five-year tests.

Furnished and applied—under our direct supervision and guarantee—to any class of buildings, flat or steep surface.

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Manufacturers of Genuine Bangor Roofing Slate  
Also Blackboards and Structural Slate. Correspondence solicited.

### Go to the bottom of the roofing question— if you want to save money on your roof.

Don't be caught by mere looks and mysterious terms. Find out what the roofing is made of.

And the time to find out is before you buy—it is often costly to find out afterward.

## Genasco

the Trinidad-Lake-Asphalt Roofing

is made of natural asphalt.

The difference between natural asphalt and manufactured or artificial "asphalts" is great. Natural Trinidad Lake Asphalt contains natural oils which give it lasting life. They are sealed in Genasco and stay there to defend it permanently against rain, sun, wind, heat, and cold.

Artificial asphalts are residual products. Same way with coal tar. They are mixed with oils which make them pliable for a while, but the oils evaporate quickly when exposed to sun and air; they leave the roofing lifeless, and it cracks and leaks.

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The Kant-leak Kleet is the lasting waterproof fastening for seams—prevents nail-leaks, and does away with unsightly cement.

Ask your dealer for either Genasco mineral or smooth surface roofings with Kant-leak Kleets packed in the roll. Fully guaranteed. Write for the Good Roof Guide Book and samples.

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Largest producers of asphalt, and largest manufacturers of ready roofing in the world.

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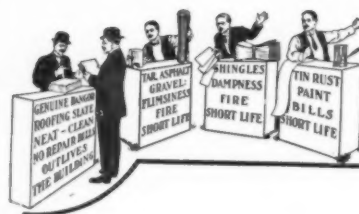


New York

Cross-section Genasco Model Roofing



Crushed Quartz  
Trinidad Lake Asphalt  
Asphalt-saturated Wool Felt  
Trinidad Lake Asphalt  
Asphalt-saturated Burlap  
Trinidad Lake Asphalt



### "What Roofing Shall I Buy?"

With the many strong claims put forth by the various roofing manufacturers, each putting his best foot forward, it is no wonder the house owner becomes bewildered.

Yet he doesn't want to make a mistake. He realizes that a mistake in roofing is costly, annoying and, perhaps, dangerous.

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Adapted for use on  
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## EHRET'S SLAG ROOFING

### The Roof With a Reputation

### WHY?

**BECAUSE** It is the best Fire Retardant.  
**BECAUSE** It needs no repairs.  
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**BECAUSE** WE make good Our Guarantee.

APPLIED ONLY BY

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# LIQUID GRANITE

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Established 1858

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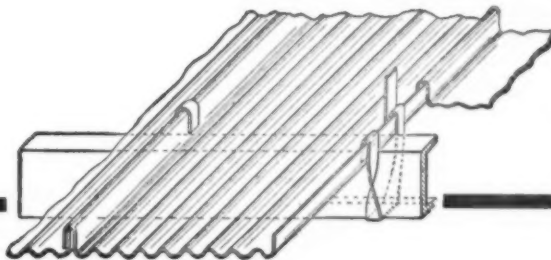
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FOR OLD POINT COMFORT, NORFOLK,  
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SOUTH AND WEST.

THROUGH TICKETS TO ALL POINTS.

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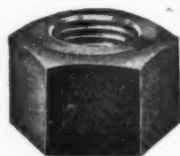
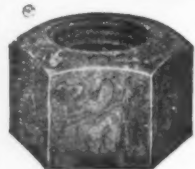
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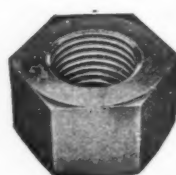
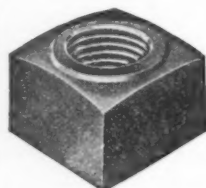


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in strength, finish, absence of blow-holes and cracks, and they cost  
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We make any kind, and make them right.

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Annual Capacity 25,000 Tons.

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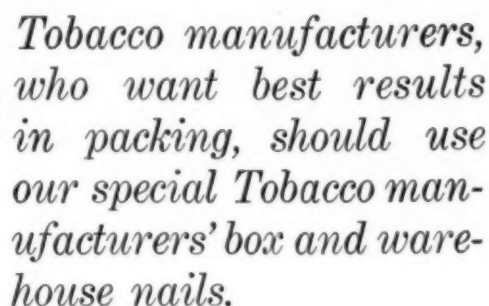
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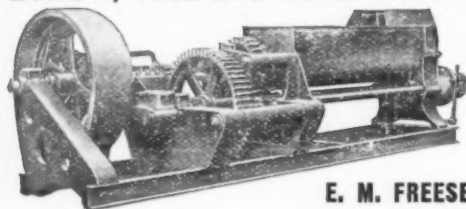
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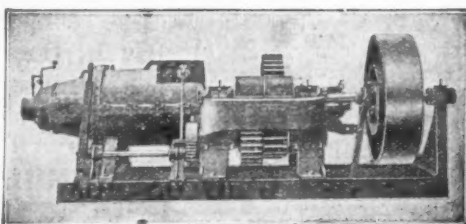
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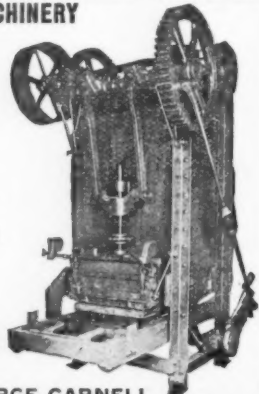
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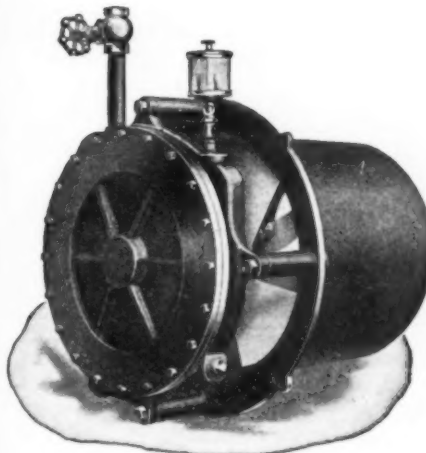
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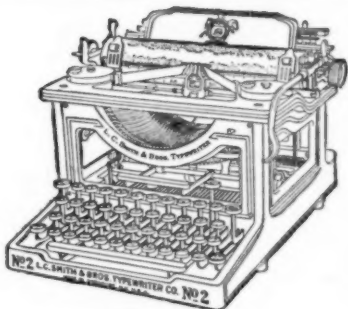
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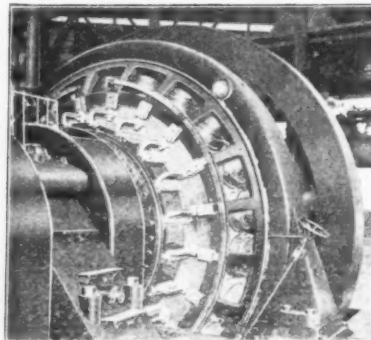
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# MANUFACTURERS RECORD

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

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BALTIMORE, DECEMBER 21, 1911

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BALTIMORE, DECEMBER 21, 1911.

### COTTON IN COMMERCE.

In spite of an average reduction of two cents and a half a pound in price, raw cotton will still be the leading article in the export trade of the country in the calendar year of 1911. With December exports still to be added, the exports of raw cotton thus far in the year have been 3,637,925,856 pounds, an increase over the same period last year of 694,252,121 pounds, with the value increasing from \$427,128,781 to \$439,752,812. The value of cotton exports in the 11 months is greater by \$90,046,737 than the combined value of the exports of meat and dairy products, breadstuffs, mineral oils and cattle, sheep and hogs in the same period. Comparison of these five classes of exports in 11 months of 1910 and of 1911 is made in the following table:

	1910.	1911.
Cotton.....	\$427,128,781	\$439,752,812
Meat and dairy.....	97,530,257	125,152,538
Breadstuffs.....	83,972,992	111,480,553
Mineral oils.....	81,691,948	90,859,356
Cattle, etc.....	7,603,347	13,213,628
Total.....	\$697,837,325	\$780,458,887

It is estimated that the year's value of cotton exports will exceed \$500,000,000, double that of the exports of iron and steel and more than three times that of meat and dairy products. These three classes are the leaders in exports, and to their total must be added \$125,000,000 worth of breadstuffs, \$100,000,000 worth of mineral oils, nearly \$100,000,000 worth of copper, \$40,000,000 worth of cotton manufactures, \$35,000,000 worth of agricultural implements, \$35,000,000 worth of cars and carriages, and \$25,000,000 of chemicals and medicines in estimating the aggregate for the year, the articles mentioned constituting about 62 per cent. of the whole.

### COPPER IN THE SOUTH.

The great copper-producing States of the country are Arizona, Michigan, Montana and Utah. Their aggregate smelter output in 1910 was 926,977,470 pounds, or 86 per cent. of the total production of the United States, 1,080,159,509 pounds. Tennessee leads in the production in the South, but the smelter output of that section is less than 2 per cent. of the country's output. The output by States in 1909 and 1910 is shown in the following table:

States.	1909.	1910.
Georgia.....	.....	724
North Carolina.....	120,451	181,263
Tennessee.....	19,207,747	16,691,777
Texas.....	3,456	2,961
Virginia.....	231,971	105,313
Missouri.....	2,159,636	603,570
Total.....	21,723,261	17,585,608
United States.....	1,092,951,624	1,080,159,509

The entire output in Tennessee, according to the United States Geological Survey, from which these figures are derived, was from the Ducktown district, one of the earliest large producers of the country as far back as 1850 and where the present activity has been under way for 21 years. The district has produced all together more than 200,000,000 pounds of copper. The output of North Carolina, second in the South in 1910, was principally in the Virgilina district, extending into Virginia, where the district in that State and the Dumfries district in Prince William county were the principal producers. With the Missouri figures are included the production of unapportioned districts.

### PACKING PLANTS FOR THE SOUTH.

Commenting upon the recent article in the MANUFACTURERS RECORD on the desirability of packing plants in Southern cities, the Arkansas Gazette of Little Rock says:

A packing plant is one of the great needs at Little Rock. Not only would it furnish a market for cattle, hogs and sheep raised in this region, but it would mean the development of the live-stock industry, mean more diversification on the farms and mean more money for the farmers. The Chamber of Commerce has already taken this matter up.

The Little Rock Chamber of Commerce has been assiduous in encouraging the agricultural development of Arkansas, and especially of the section immediately tributary to Little Rock. It will give a definite point to that campaign should it succeed in the establishment in its city of a packing plant. In the days before the perfecting of cold storage there may have been some excuse for the sending of millions of dollars annually from the South to other parts of the country for meats. But those days are passed. Nowhere else, probably, is there greater interest in the cold-storage question, and nowhere else has there been greater advancement in the establishment of cold-storage plants. Moreover, the experience of Houston, Tex., and Natchez, Miss., cited in the MANUFACTURERS REC-

ORD in its editorial of recent date, is a clean-cut demonstration of the practical advantages accruing to Southern cities and their surrounding farms from packing plants conducted upon business principles.

### "VEGETABLE GARDEN SPOTS."

When the Louisiana Southern Railroad was leased by the Frisco system some time ago, President B. L. Winchell was quoted to the effect that it is the purpose of the Frisco to convert all of the rich sections of country reached by the system into veritable vegetable-garden spots. About the same time Chairman of the Board B. F. Yoakum, who has been earnest for the upbuilding of the South, was reported as stating that owners of cut-over pine lands in Alabama and Mississippi along the line of the New Orleans, Mobile & Chicago, allied with the Frisco, intend to settle them with farmers from the West and other parts of the country to engage in gardening and general farming. A recent visit to New Orleans of Frank Anderson, general industrial agent of the Frisco system, has led the New Orleans Picayune to the conclusion that the plans for the industrial and agricultural development of the lower coast are being immediately considered.

The policy of the railroad system as announced is a wise one, and, carried out to the fullest extent, will mean much to the railroad and to the territory served by it. The passing of the lumbermen tends to reduce the traffic of the railroad unless other freight be provided, and the surest substitute is promised in the turning of unoccupied prairie land or cut-over pine land into acres richly productive of many kinds of vegetables, small fruits, cotton and staple crops. Wherever railroads have gone into that sort of thing in the South upon a business basis and have persisted in intelligent work the results have met all expectations. The fact that few of the railroads of the South and Southwest had large land grants, which have been such an element in the settlement of the West, was influential in the past in keeping the railroads from entering actively into the campaign for immigration to the South. But that influence is becoming of less and less importance with the demonstration by two or three of the great systems of the South that, without lands of their own to bring into the market, the settlement of fertile farm lands by thrifty men from other parts of the country and the building up of industrial communities along their lines can bring only benefit to all the agencies concerned. The South has already a nation-wide reputation as the market garden of the country, but there is plenty of room still for thousands of veritable vegetable-garden spots in that section. Active co-operation of the railroads and landowners is all that is needed to fill that room.

### ARE WE ENTERING UPON AN AGRICULTURAL REVOLUTION?

Is it possible that all the ideas coming down through the ages of the advance of civilization in regard to the preparation of the soil for planting are to be revolutionized? Is the work of the hoe, the old wooden plow and the tractor plow to be superseded by dynamite, with results so amazing as to mark the greatest revolution of development ever made in agriculture?

Recently a test was given on a farm near Baltimore of the use of dynamite in making holes for tree-planting. Under this system, simple and inexpensive, the ground was thoroughly disintegrated to a depth of three or four feet, and in a circumference of seven or eight feet. It would not have been possible to secure so satisfactory a condition for tree-planting by ordinary methods, however much expense might have been incurred. The thorough disintegration of the ground, its pulverization and the destruction of insect life within the range of the power of the gases generated by the explosion of the dynamite, would not have been possible under the old system. So thoroughly was the ground pulverized, and so deep was the effect, that even the inexperienced fruit-grower could readily see that the rapidity of growth of the tree would be much greater than under the old system of the spade-dug hole.

A study of these experiments apparently confirms many of the claims made by those who have been investigating the possibilities and developing the system of dynamite use for agricultural purposes. So vast are these possibilities as they now appear that this movement immediately jumps far beyond a question of what it may mean to the makers of dynamite. That is of trifling importance. What it may mean to civilization may be of infinite importance.

We have before us a sworn statement of J. H. Johnson of Bessemer, Ala., to the effect that he has been growing cotton since he was large enough to work; that he is now 57 years of age, and that during all of that period the maximum yield that he ever secured was one bale to the acre until he commenced experimenting with dynamite. This year he subsoiled one acre with dynamite, and though a bad storm reduced the yield below what it would otherwise have been, he raised 1767 pounds of lint cotton on one acre. He states that last year he raised 4½ bales to the acre on another tract dynamited in the same way, and expresses his opinion that dynamited land, properly fertilized and cultivated, in a good crop year would yield five bales to the acre.

If this statement were unsupported by other investigations it might be regarded as the visionary hope of a dreamer, but others are claiming similar results. Moreover, the claim is made that the dynamiting of land in this way not only solves the drought problem by loosening the soil to such

an extent that the roots of the plant can seek nourishment to a much greater depth than under any method of plowing, but that this system will destroy the insects within the radius of the explosion, and thus possibly open a way to exterminate the boll-weevil as well as other destructive pests.

Three years ago the writer, while in Southern Florida, was talking with Mr. H. M. Flagler about some of the land conditions in a region comprised largely of limestone formation where the surface showed little or no soil. Mr. Flagler called attention to the fact that on some of this land he had set out some years before a large grape-fruit orchard, finding that in nearly every case it was necessary to dynamite the ground in order to make a hole in which to plant the tree, since the ground was too rocky to dig holes in any other way. The trees planted in these dynamited holes Mr. Flagler said had grown more rapidly and stood drouth and hot weather better than the trees planted in good soil in the immediate vicinity. Mr. Flagler expressed his surprise at the results obtained, and said that he could only explain it on the ground that the dynamiting of the hole made it possible for the roots of the tree to strike far down into the ground and bring up nourishment from depths which could not be reached by roots of trees planted in the old way. At that time the question of dynamiting the soil for tree-planting and other purposes had not attracted much attention.

In a letter from Palm Beach, published in the MANUFACTURERS RECORD at that time, the writer said:

Contrary to general supposition, though the facts have often been published, these islands or keys which stretch along the Florida coast are almost solid rock, and much of the mainland of that part of the State is of the same formation, limestone analyzing about 92 per cent. A remarkable fact is that trees, pine as well as fruit, grow in and out of this rock, which is so hard that dynamite is often used in making a hole in which to plant a tree. Mr. Flagler has 70 acres in grape fruit, most of it planted in dynamite-blasted holes, and these trees flourish luxuriantly and apparently stand a protracted drought better than those planted in the soil.

The statements made by Mr. Flagler are now recalled in the light of the remarkable results reported as being achieved in many directions through the use of dynamite not only in tree-planting, but in varied forms of agricultural work, from cotton and corn-growing to other activities, even to the draining of wet spots, where dynamiting can be used to so disintegrate the soil as to let the surface water drain to lower depths. It will be interesting to learn if Mr. Flagler's grapefruit trees in dynamited land are still showing such excellent results.

In all its broad aspects of agricultural activities, lessening the cost in many cases, and vastly increasing the yield, and the possibilities of clearing the millions of acres of cut-over pine lands of the stumps that now interfere with agriculture, and draining wet spots and ditch-digging on farms, the dynamite proposition is one of the marvels of the day. Science is constantly working out in manufacturing vast changes in methods of doing business, in economy of production and increased yield, in the saving of by-products and in wealth created out of waste. But if dynamite as a factor in agriculture fulfills the claims made for it, and which seem to be sustained by facts, the agricultural interests of the world will be revolutionized. The problem of cheaper living will be solved without lessening

the profit of the grower. Truly we are living in a wonderful era.

### RUNNING THE CONVENTION IDEA TO SEED.

The editor of *The Chronicle*, Charlotte, N. C., in a letter to his paper from Washington, called attention to the slim attendance at the Rivers and Harbors Congress from the South. "Massachusetts," he said, "had 100 delegates in attendance, while North Carolina had four," and to this he added: "The attendance is large from everywhere except from the South, New England and the West being particularly strong." Commenting on this, the *Wilmington (N. C.) Star* says:

The truth is, the South is poorly represented at the most vitally important navigation Congress that ever assembled in America. Its importance must be realized when we consider that this waterways congress is being held right on the eve of the opening of the Panama Canal, from which the South pretends to expect such great aid in its complete development. The canal is scheduled to be opened for traffic in little more than a year, and yet the South is indifferently represented at the National Rivers and Harbors Congress. North Carolina had four representatives! Wilmington ought to have had fifty.

The South has nearly two-thirds of the navigable waterways in the United States and the greatest coast line of the entire nation. North Carolina has more navigable waters than any State in the Union, and yet our great interest in the improvement of waterways is represented by four delegates! Compare that with the hundred "gally-badged delegates" from Massachusetts.

The MANUFACTURERS RECORD is not surprised at the small attendance from the South. The Rivers and Harbors Congress is one of the most important gatherings of this country. It has done a great work. It has been so well organized and managed that its annual gatherings have been attended by many of the most representative men of the country, who confined their discussions and their resolutions to the one particular thing of developing throughout the country a broad sentiment in favor of the improvement of our rivers and waterways. The *Star* is correct in its estimate of the importance of this Congress and in its regret that the South was so poorly represented. But the *Star* need not go far to find the reason. For the last eight or ten years conventions, parliaments, conferences, congresses of one kind and another have been held throughout the South to such an extent as to bring all work of this kind into more or less disrepute. The Mayor of Knoxville a few weeks ago in referring to this subject said:

I have been appointing citizens of Knoxville in carload lots and in number as various as the sands of the sea to various good-roads conventions, waterways conventions, municipal conventions and all sorts and kinds of conventions in all parts of the United States, and not a one of them has ever attended at any time.

A reaction always follows from an unwise or unhealthy agitation, and the attempt to overstimulate or to "work" the public for individual benefit by conventions of one kind or another has had its natural effect. The South has had conventions until it is sick of them. The Governors of the Southern States and the Mayors of Southern towns are constantly in receipt of letters asking them to name delegates to this or that convention. Men have ceased to take such an appointment seriously, as very naturally they would, and the public has ceased to regard seriously any conventions of this kind, just as the MANUFACTURERS RECORD has known would be the case. The papers of the country have surfeited the public with exag-

gerated statements furnished to them by press agents about the thousands of people that were to attend some congress or convention or parliament when a plain statement of the facts would have been infinitely better for the promoters of these enterprises, for the newspapers and for the public. Fed on this kind of mental food, the public has become somewhat nauseated, and the seriously-minded people of the South do not take as seriously as they otherwise would do the really great and important gatherings which they should attend and in which they should take an active part. Recently Baltimore papers announced day after day, with a great flourish, that the Governors of all the Southern States were to be in attendance at an immigration congress in this city, and that the presidents of nearly all the leading railroads of the South would be here, naming in detail the men who were to attend. One paper stated that during Maryland Week, in which this conference was to be held, there would be "hundreds of thousands of visitors." Even if the hundreds had been left off the thousands would have been wild enough as an exaggeration to satisfy the most rampant lover of superlatives. The Baltimore conference, instead of being attended by all the Governors of the South and all the railroad presidents of the South, was attended by five or six of the Southern Governors, including the Governor of Maryland, and by three or four railroad presidents. Exaggerations of this kind do the South great harm and cause people to believe that most of the things done in the South are of this character. If we could for the next ten years have a rest from conferences and congresses and conventions and parliaments, and settle down to actual business, giving attention only to the few great organizations doing a specific work, such as the Rivers and Harbors Congress, then indeed the South would be vastly benefited.

We do not like to make to our Southern exchanges any suggestions, but if they would carefully compare the advance reports as to the thousands who are going to attend these gatherings with the actual number in attendance, they would see the desirability of more accuracy in some of their reports—an accuracy which would inure to their own benefit and that of their readers.

### THE MARVELS OF THE TELEPHONE.

A striking illustration of how the telephone has brought the world into close touch and made possible quick business transactions was brought to the attention of the writer a few days ago in New York. As several friends were gathering for dinner, one, just before entering the dining-room, put in a telephone call for Chicago. In a few moments word came from the Chicago hotel which had been called that the gentleman who was desired was out, but would return shortly. Even this amount of information could not have been obtained through the telegraph inside of several hours. A half hour later a reply came from Chicago that the gentleman wanted was then at the phone. The gentleman who had called Chicago left the table and was away about 12 or 15 minutes. On his return, commenting on the wonders of the telephone, he stated that he had been making a business deal amounting to a quarter of a million dollars with a man in Chicago who had two associates in the transaction, one in Denver, the other

in Milwaukee. The Chicago man communicated with each of them over the phone, the line between Chicago and New York being kept open, and the transaction between four people, one in New York, one in Chicago, one in Milwaukee and one in Denver, was reported as closed in less than 15 minutes.

Some months ago a gentleman in Baltimore had occasion to telephone frequently to an Atlanta physician about a case of extreme illness in the latter city. During the two or three weeks in which daily calls were made the longest time required to secure the office of the Atlanta physician was 14 minutes, and one day the Baltimorean was talking with this physician in considerably less than five minutes from the time in which the call was put in.

These are illustrations of the marvels of these modern days, which we accept as a matter of fact, and rarely stop to think of the difference between today and 25 years ago.

### ECONOMICS FROM A BUSINESS MAN'S VIEWPOINT.

In the past 50 years of the iron and steel age of the world, with its inventions almost annihilating for all practical purposes the elements of time and space and with its machinery displacing hand labor by the wholesale temporarily in some directions, while calling for greatly increased productivity in others, a tremendous economic revolution has been working out. Like every other revolution marking material advancement of the human race, the one in which the world is now involved is not without its ills. One of those ills, manifesting itself at intervals, is industrial depression. Sociologists of the chair, economists of the rostrum or the public press, legislative researchers and bureaucratic and commission investigators have again and again studied this malady in an effort to trace its origin so as to be in a position to suggest measures of prevention. During the greater part of the 50-year period George H. Hull, now of the Pig-Iron Storage Warrant Co., has been closely identified with the iron trade, which is intimately related to the economic revolution and affected by and affecting its various manifestations, including industrial depression. Readers of the MANUFACTURERS RECORD are well acquainted with the general attitude of Mr. Hull toward the industrial business of the country in connection with its iron trade, "the barometer of trade," and they, with many others, will be interested in a volume which he has managed to produce in the midst of other occupations.\* Mr. Hull takes the position that the origins of industrial depression have been buried from sight because investigators have resorted to synthesis instead of to analysis, and have searched for something external and mysterious, whereas the matter is internal, simple and commonplace. To that he adds elaboration of the propositions that the accumulation of unsold goods is not an evidence of too much production of that kind of goods, but of too little production in other lines which ordinarily consume that kind of goods; that overproduction is a term that should never be applied to the economical production of any useful or desirable commodity which can be preserved and carried to a place or time

\*Industrial Depressions: Their Causes Analyzed and Classified with a Practical Remedy for Such as Result from Industrial Derangements; or, Iron, the Barometer of Trade. By Geo. H. Hull. Publisher, Frederick A. Stokes Company, New York city.



when it will surely be needed; that if a country is to have the maximum prosperity it must have the maximum of production, and that as man masters the art of dealing intelligently with the temporary surplus production of each article nothing more will be heard of overproduction in connection with that article.

With these as a thesis, and backing up his arguments with charts, diagrams and statistical tables, Mr. Hull considers in detail the various alleged causes of industrial depressions, such as poor crops, Presidential elections, reactions, "periodicity," conversion of too much circulating capital into fixed capital, overstocking the world with economic tools, high and low tariffs, immigration, convict and coal labor, improper legislation, etc.; he elaborates the principle of iron as the barometer of trade, tracing the correspondence between the high prices of iron and the depressions and the contemporaneousness and severity of such depressions in the five chief iron-producing nations, and in an analysis of the business of the country covering a considerable period he reaches a conclusion that what are called booms result almost entirely from the great periodic increases in the volume of construction, and that so-called industrial depressions follow almost entirely from the great falling off in the volume of construction. Additional facts in support of that conclusion are set forth in the author's analyses of industrial depressions between 1833 and 1887, between 1887 and 1897, and between 1907 and 1908.

Recognition is given to the fact that many industrial depressions have come from financial causes, from war, pestilence, famine, bad legislation, political upheavals and other great calamities, but in the cases of such external causes the origin is clearly recognized. But from the facts and the statistical illustrations with which his book bristles Mr. Hull deduces the theory that the industrial depressions with which he deals come as an effect of abnormally high prices of construction, and he traces the demoralizing influence to what he terms "investment construction." He does not claim that the financiers of this class of construction are responsible for the entire volume of the construction contracts which bring booms, but he adds:

We claim, however, and think we have thoroughly demonstrated that enough additional construction is contracted for by this class in the low-priced period to carry the resultant demand for labor and materials far beyond the capacity of the country to fill on contract time, and that the making of this class of contracts falls off largely in volume as soon as prices make any considerable advance. To such an extent is this true that when the construction they provide for is completed there is not sufficient demand left to absorb the labor and materials available, and depression follows.

In further exposition of his theory he says:

What we include under the tentative term investment construction is that for which contracts are not entered into at all times. It is the class of construction which is entered into with the view of earning a moderate rate of interest for long periods of time, and a very small difference in the prospective rate of interest to be derived has a wonderful influence in loosening or tightening the strings to the long purses affected. It includes chiefly, the great enterprises owned and paid for by the far-seeing ones who hold the strings to the great majority of the long purses of the country. That this class is a very large and powerful one is not only evidenced by the boom itself, but by the further fact that each time it takes hold the industries of the country are lifted permanently to a higher plane. \* \* \* Let there be no doubt in the minds of anyone about the existence of this class or of its

great power. It exists as certainly as the spendthrift class exists. There is never a panic, when large amounts of valuable securities are sold for "any price they will bring," that this class of far-seeing ones is not found to have purses long enough to absorb all that is offered. It is wonderful how inexhaustible these purses are. No panic has ever discovered their size, and the strings to them loosen to low-priced securities and low-priced construction with equal facility.

Abnormal fluctuations in prices, bringing booms on the one hand and depressions on the other, are traced by Mr. Hull to the lack of knowledge of future conditions of supply and demand. Without suggesting that the remedy worked out by him will be a cure-all, he advocates the inauguration by the National Government of a system for collecting and publishing monthly all pertinent information about the existing volume of construction under contract for future months and about the capacity of the country to produce materials to meet the total demand thus indicated. This remedy, in his judgment, will probably be only the first step, but it will bring about a sound basis from which to make real progress.

This book is likely to set manufacturers, constructors of all kinds and business men generally to hard thinking. It is comprehensive in the treatment of the subject, and is brimful of suggestions of value to live minds concerned with the welfare of the country, even though agreement may not be had entirely with the proposed remedy. It is especially attractive in that, undertaking to discuss economics, it does not neglect the essential factor—human nature.

#### CAROLINA'S INLAND WATERWAY.

Progress on a portion of the inland waterway projected to extend from Massachusetts Bay to the Rio Grande is suggested in recommendations, as reported in a dispatch from Washington, of the Board of Army Engineers, that the Government purchase the Chesapeake and Albemarle Canal, one of the connections of the North Carolina sounds with the Chesapeake Bay by way of Norfolk, and reconstruct it to a depth of 12 feet and a bottom width of 90 feet, the deepening of the Beaufort Canal to 12 feet and the connection of Albemarle and Pamlico sounds by a canal following the Allegator River and Rose Bay route. The carrying out of these recommendations will give an inland route between Norfolk and Beaufort having a 12-foot depth at low water and one of 13 or 14 feet at high water.

#### FOREIGN CHEMISTS AND THE SOUTH.

President C. H. Markham of the Illinois Central Railroad Co., writing from Chicago to the MANUFACTURERS RECORD with reference to the International Congress of Applied Chemistry, says:

"I have arranged to have our traffic and industrial representatives keep in touch with active people of the South, calling attention to the importance of this meeting and endeavoring to have them attend the Congress. We will also endeavor to have these people get in touch with the foreign delegates, with the idea in view of inducing them to visit those sections of the South which have great natural resources."

#### WORK FOR THE SOUTH.

Hon. J. T. Watkins, member of Congress from Louisiana, in a letter to the MANUFACTURERS RECORD, says:

"You are doing a great work for the South, and we of this section of the country appreciate it beyond measure."

## In the Fruit Belt of Western Carolina.

[Special Correspondence Manufacturers Record.]

Altapass, N. C., December 16.

Among the many opportunities which soil and climate have combined to offer those who cast their lots along the line of the Carolina, Clinchfield & Ohio Railroad none is more inviting or promises surer returns for intelligent effort than the cultivation of apples for the market, and one of the strangely unaccountable things connected with this section is that the fact is not more widely recognized and utilized. This is one of the old parts of the country. Through the same water gap in the Blue Ridge now traversed by the Clinchfield route the brave Continental soldiers marched to the glorious victory at Kings Mountain during the Revolutionary War, and apple trees planted almost that long ago have been giving annual testimony of the fact that this is their natural growing place, yet the fact is but now boring its way into the understanding of the people in such a way that it will be made to count. It was known in the old haphazard days of farming and orcharding that certain orchards bore large quantities of exceptionally fine apples, but it seems that the fact was always regarded as a matter of chance in planting or luck in ownership; was never correlated with soil and climatic conditions, with altitude, rainfall or drainage. Now it is known that, while an apple tree will grow almost anywhere it may be planted, and will bear fruit of a kind, it reaches its highest state of perfection where certain known conditions meet. These conditions have been summed up concisely as follows:

1. Zone—Temperate.
2. Climate—Summer cool, winter cold.
3. Soil—Rich loams and clays.
4. Altitude—High.
5. Rainfall—Constant and copious.
6. Drainage—Good.
7. Sunlight—Abundant (air clear and cloudless).
8. Food—Constant supply of humus.
9. Protection from spring frosts.

A combination of these things makes for perfection in the quality of the apple and for the highest quantity in production. Some of these requisites are found in one place and some in another. These mountain regions of North Carolina seem to have them all. The soil on the mountain-sides and in the coves is deep and rich and fertile to a high degree, and the high altitude gives the same cool climate found in the best apple regions of the North, while their southern position gives a much longer growing season. The amount and regularity of the rainfall and the perfect drainage furnished by hillside locations complete the tale of requisites.

It is a curious fact, but a fact nevertheless, that there are certain altitudes in the mountains which are known as "verdant zones," or "thermal belts," in which frosts rarely occur in early autumn or late spring. In them the buds put out early and survive when both above and below the frost comes with chilling and destroying breath, and in the autumn the foliage endures for weeks after all surrounding vegetation has been killed. These "belts" are found in many places throughout this section, and there are numerous places in which old settlers aver there has not been a fruit failure in 40 years.

Owing to the excellent growing conditions the apple trees reach enormous size, and are of correspondingly large productive capacity. Another advantage of or-

charding noted here is that the trees are of very long life. There are well authenticated instances of trees that are still bearing at more than a century's age and that are seemingly good for many more years to come. This is probably due to the fact that the perfect drainage keeps them from suffering with "wet feet," which are undoubtedly conducive to earlier decay. The same slope of the hill that saves them from a too plentiful supply of moisture probably saves them also from drouth because of the constant supply of water as it passes from higher to lower altitudes, amounting, as one expert has pointed out, to a natural system of subirrigation.

Here, then, under these conditions, apples grow large as to size, of fine color and unsurpassed flavor. That they meet all these requirements is proved by the fact that their exhibitors have carried off the highest prizes when they have shown them in competition with the choice products of the country's best orchards, notably the sweepstakes prize offered at the National Horticultural Congress at Council Bluffs, Iowa, October, 1910, as well as a number of special prizes.

The varieties of apples that produce well here are the same that have been found popular and profitable in the orcharding sections of Virginia and West Virginia—Grimes Golden, York Imperial, Rome Beauty, Stayman Winesap, Virginia Beauty, Mammoth Black Twig, and in some favored localities the Albemarle Pippin. It is claimed, indeed, that near this place, and especially to the southwest, there are stretches of cove land in which the Albemarle Pippin reaches as high a state of perfection as on the hilltops and mountain-sides of old Albemarle itself, while there are thousands of acres lying all along the road from Dante, Va., to where it reaches the lowlands of the Carolinas, which are adapted to the production of the best in the other varieties enumerated. One authority declares that, beginning within half a mile of this point, an orchard of 100,000 trees could be successfully planted and maintained in one body, and of this more than 80 per cent. could be found adaptable to the high-class varieties. Col. Henry C. Wysor, a Virginia apple expert, wrote of this section under date May 2, 1911:

"The more intimately I become acquainted with this fertile expanse of apple land (for this is my third visit) the more convincing it is to me that large dividends await the investor in apple orchards on the Clinchfield route, and the day is not far distant when 'perfection of beauty' can be aptly and truthfully applied over this expanse of virgin apple lands. What is it you have in this line to attract wary capital, inducing its betrothal to this Blue Ridge section? Acres upon acres, multiplied by thousands, of soil character that home fruits will simply revel in. \* \* \* A climate that is ideal in every requisite for high-grade apples in color, size, form, texture and flavor. The integrity of the fruit grown here is undoubtedly conducive to keeping qualities both in artificial and natural cold storage. The situation is such that fruitfulness of the most promising character can be expected, being above the frost line that kills fruit readily, and well-nigh free from insect pests and fungus diseases that harass orchards in less favored localities. This has been proven by the small orchards that for many years the careless natives

have grown in a most neglectful way."

On a former visit Colonel Wysor had written that, in his opinion, "commercial orcharding will far outweigh in value all the live-stock, grain, hay and other forms of husbandry that have ever been attempted" in this region. Prof. W. N. Hutt, State Horticulturist of North Carolina, writes of these lands: "In the study of apple culture I have visited every important apple-producing section on this continent, and I have seen none that have better natural fitness for commercial apple production than the mountain counties of this State," and Prof. H. E. Van Deman, pomologist, of Washington, says that "about Altapass, which is on the crest of the Blue Ridge, there are some of the very best of the orchard sites."

Half a mile from here, on the southern slope of the mountain, where grew the fine corn crop on the farm belonging to the Clinchfield road mentioned in a former letter from this section, Mr. R. F. Brewer, industrial agent of the road, planted 125 acres in apple trees last spring. The thrifty growth of the young trees, the quality of the soil, the altitude of the orchard and the fine southern exposure have led fruit experts who have visited the farm to predict great success for the venture. Yet, except that the land was better prepared than is usual in such cases, the orchard has no whit the advantage of many others that may be seen from the car window during a ride over the road. The trees will be given every needed attention and nothing will be left undone that can properly be done to demonstrate the fact that apples can be made a highly profitable commercial crop throughout this section.

Another thing Mr. Brewer has done in the line of demonstration along this road is the sending of apparatus to spray the orchards of the farmers and to have them given good lessons in the matter of pruning and caring for their trees. The Clinchfield road has adopted the policy, now being pursued by other up-to-date railroad systems throughout the country, of showing by actual demonstration what pursuits can be followed with profit along their lines, and the culture of apples is believed by the management to offer possibilities equal to anything else promised in the way of bringing money to the farmer and horticulturist and freight to the road. Mr. Brewer himself is a firm believer in the virtue of these lands as producers of high-grade fruit, and his enthusiasm and optimism are doing much to carry conviction to the minds of others.

Nor should the orcharding business be confined to the production of apples alone. Peaches, pears and cherries have been found to make profitable crops throughout this entire mountain section, and with proper attention would no doubt prove as good commercial propositions as apples. They, however, require more rapid and careful handling and encounter more danger in marketing, and therefore call for more scientific knowledge in both growing and selling than apples, which, in their very nature, lend themselves more readily to the slow and unstudied methods of the ordinary farm.

Berries, too, are of natural growth here—strawberries, blackberries, raspberries, gooseberries. All these grow wild, and where cultivated yield enormous returns. And their quality is much superior to the product of those sections where they grow less naturally and with corresponding lack of proper flavor. Professor Van Deman, writing of the berries of this locality, says:

"One new idea I would suggest about growing strawberries for the Southern trade: they will be so late at that high altitude that there can be no competition

in the market there, for they will ripen with those of Maine and other far Northern regions. The summer hotels in the mountains are filled with guests who are anxious to get and willing to pay for such delicacies. All that is lacking is the growers, for the climate and soil are there, and I never saw more thrifty wild plants anywhere. Raspberries, gooseberries and currants will also flourish there splendidly, and as for blackberries the country is full of them. But of the cultivated kinds mentioned there are practically none and the demand is great. Who will step in and reap the reward?"

Personally, I am a firm believer in diversity of products on the farm, and I therefore believe that the best profit to be gathered here, as elsewhere, will be from the orchards of from 10 to 25 acres that are carried along with other agricultural interests. The man who raises his own corn, cures his own meat, takes a profit from his poultry yard and his dairy and has a well-kept orchard as a sort of side issue will find that it will cost him very little in addition to his other farm expenses, and will yield, one year with another, a handsome return. In this way he will be saved from the necessity of rushing his fruit to market regardless of price, because he will be assured of a living anyway, and can afford to hold his apples and wait for satisfactory conditions before selling them. The conditions of soil and climate throughout this section lend themselves readily to that kind of farming, for nowhere are there greater possibilities for profitable general agriculture and stock-raising.

Lands here are still very cheap in comparison with their price in other approved orcharding sections, and the best of them can be purchased at prices ranging from \$10 to \$50 an acre, according to location and whether wild or in a state of cultivation. This, with their convenience to the best markets and their unrivaled conditions that make for healthful and delightful places of residence, render them especially desirable for those persons of moderate means who wish to build homes and engage in general agricultural pursuits amid genial climatic surroundings, where the summers are less trying than in lower

altitudes farther south and the winters lack the rigors of the regions to the north.

GEORGE BYRNE.

### FOR TENNESSEE FARMING.

Nashville Board of Trade Encouraging Corn Culture.

[Special Cor. Manufacturers Record.]

Nashville, Tenn., December 16.

Under the auspices of the Tennessee State Fair Association and agricultural committee of the Nashville Board of Trade, a most enthusiastic competitive gathering of the members of the various boys' corn clubs of the State took place in the Capitol building here. Many separate meetings of the various county clubs had heretofore been held over the State, and this general meeting in the capital city was somewhat in the nature of a sweepstakes affair. The farmers were holding at the same time and place the best attended, most instructive and most interesting meeting ever held by them, and these splendid exhibits of corn, raised by their boys, and the friendly spirit of emulation prevailing among them, excited the highest interest of their proud and watchful elders.

Aside from the handsome premiums given by the State Fair Association, the agricultural committee of Nashville's Board of Trade gave the following prizes, to wit: Twenty-five dollars in gold to that boy, one from each of the three divisions of the State, producing the most corn from one acre; a championship prize of like amount to the best of these three; two beautiful fifty-dollar silver loving cups, one to the man and one to the boy, producing the best 10 ears. Singularly enough, these cups were won by father and son, the Messrs. Hoffman of Bedford county, Tennessee. T. G. Tinsley, chairman of the agricultural committee, presented the cup to the father, and Robert Ewing, a member of the agricultural committee, the one to the boy.

In making this presentation Mr. Robert Ewing, who is chairman of the research and resource committee of the Nashville Board of Trade, who has for many years been doing everything within his power to advance the mineral and agricultural in-

terests of Tennessee. He has been especially active in inducing various States to use Tennessee phosphate rock, and, without professing to be a skilled farmer, has tried to arouse the spirit of the people to a course which will lead to the commercial advancement and greater independence of the South. Referring to the possibilities in the phosphate field in Putnam county, east of Caney Fork and west of the Cumberland Plateau, traversed by the Tennessee Central Railroad, Mr. Ewing says:

"This is a new district. Heretofore the main deposits have been regarded as being to the south of Nashville, in Williamson and Maury counties, and to the west of Nashville, in Hickman and Perry counties. This new field is to the east on the Tennessee Central Railroad."

### \$8,000,000 IN FIVE YEARS.

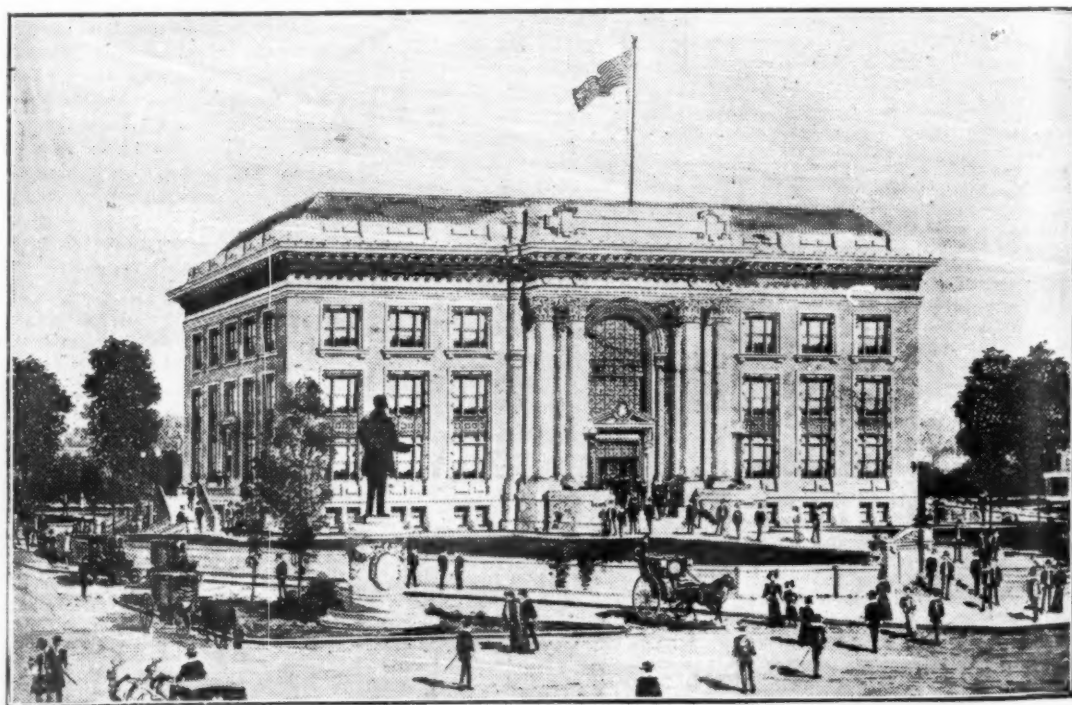
Expenditures in Building at Wilmington.

Henry E. Bonitz, architect, of Wilmington, N. C., in sending to the MANUFACTURERS RECORD a clipping from the *Evening Dispatch* of his city a report on building there in the past five years, writes:

"This impresses me with the fact that Wilmington, for a city of about 30,000 inhabitants, is doing considerable building. I haven't any records before me showing what other Southern cities are doing, but for a city of 30,000 people to construct over \$8,000,000 in about five years seems to be doing some building. This data was prepared in my office, and after carefully surveying the same and making some further investigation I believe it is underestimated by at least \$1,000,000.

"I wish to remark incidentally that Wilmington has a splendid opening for a tile and marble dealer, plastering contractor, a large paper-hanging business, and can use 50 more skilled carpenters, besides a number of skilled masons."

The data prepared by Mr. Bonitz show that in the five years there were built 1670 residences, 211 business houses, 10 public buildings and churches and an apartment-house, together with \$460,000 spent upon suburban homes and \$500,000 upon factories outside of the corporate limits.



HAMILTON COUNTY COURTHOUSE, CHATTANOOGA, TENN.

To be erected; three stories and basement; 154x80 feet, with wing on north side 50x80 feet; front of light gray brick or Tennessee marble; six entrances; tile corridors; steel shutters and doors with combination locks for each office; bids for construction received until December 20; architect, R. H. Hunt, Chattanooga; supervising architects, J. G. Barnwell and Clarence T. Jones, both of Chattanooga.



# West Virginia's Importance in Coal Production.

By FRED E. SAWARD.

West Virginia now stands second in the rank of coal-producing States of the Union, Pennsylvania naturally holding the lead which it has acquired during the past century. It is particularly interesting to notice that the tonnage has grown to such proportions it now holds during a comparatively few years.

The quality of its coal is in the first rank for fuel, and has been therefore sold to many places in the United States and abroad for this reason. Not only is the tidewater tonnage a large one, but there is also a very extensive business being done to States beyond the borders of the Mountain State. Naturally as consumption has increased there has been a generous business done by the railways traversing this State, such as the Norfolk & Western, Chesapeake & Ohio, in large part the Baltimore & Ohio, the West Virginia Central, Coal & Coke, Kanawha & Michigan and the Virginian. All help to exploit and make known the use and value of the fuel produced in the State. At the same time there is considerable transported by the Kanawha River waterway.

The shipping points of Norfolk, Newport News and Sewalls Point on the Chesapeake Bay and its tributary are almost household words.

South America, Southern Europe, and even far distant Alexandria, in Egypt, as well as the Philippine Islands, have had some portion at least of the fuel supply from mines within this State. The growth of the tonnage is shown in the following table:

Year.	Tons.
1863.....	444,648
1865.....	487,897
1870.....	608,878
1875.....	1,120,000
1880.....	1,120,000
1885.....	3,369,062
1890.....	7,394,654
1895.....	11,387,961
1900.....	22,647,207
1905.....	37,791,580
1910.....	51,849,220
1911.....	61,671,019

The 1911 production will, without doubt, be more than 65,000,000 tons, which shows quite an increase, despite the reported depression in business in general.

The first records of coal produced in West Virginia are had for the year 1863, and from the table above it will be seen that there was what was considered at that time a large increase by the time the year 1870 passed by, and the tonnage at present is far beyond what was expected, and the growth has been wonderful, for there is more coal produced in one day at the present time than during the whole of the earlier years, and, in fact, the output for one month at present is more than the tonnage produced in a year's time a little more than 20 years ago. While it ranks second among the coal-producing States of this country, it produces more coal than any country in the world outside of the United States, except Great Britain and Germany.

The largest portion of the West Virginia product consumed within the borders of the State is burned in locomotives hauling the product from the mines, and it is the lowest-priced high-grade coal produced in the United States. The largest portion of the output is consumed outside of the State, a large quantity finding its way to the great Northwest, New England and other sections of the country; in fact, West Virginia coal is used North, East, South and West.

The State of West Virginia is always prominent in the consideration of trade affairs by reason of the large and constant

increase in its production, naturally coupled, as it is, with activity on the part of tonnage producers of the State. Paying a low mining rate, coal can be shipped at a great majority of the operations at a lower rate than inferior tonnage from other sections can be turned out, so that West Virginia coal usually is sent out to the full extent of the carrying capacity of the various railroads serving the coal fields of the State.

The coal territory of the State is naturally divided into three prominent fields, the Northern, the New River-Kanawha and the Pocahontas. The Northern field comprises the Fairmont and Upper Potomac districts, served, respectively, by the Baltimore & Ohio and the Western Maryland roads. The New River and Kanawha fields, with their tributary districts, are served by the Chesapeake & Ohio, the Kanawha & Michigan and the Virginian railroads. The Pocahontas field, with its several subordinate districts, is served by the Norfolk & Western, and to a slight extent by the Virginian Railway.

The railroads transporting coal from the mines in West Virginia have all made great strides during the past few years, especially the Norfolk & Western and the Virginian, as will be seen from the table herewith:

Road.	1909.	1910.	1911.*
Baltimore & Ohio Railroad Co.....	8,550,100	12,076,935	12,250,000
Chesapeake & Ohio Railway Co.....	12,110,000	14,295,995	14,500,000
Norfolk & Western Railway Co.....	13,233,244	15,100,000	18,000,000
Kanawha & Michigan Railway Co.....	2,498,461	3,100,500	3,300,000
Western Maryland Railway Co.....	2,001,332	2,165,300	2,250,000
Virginian Railway Co.....	486,021	1,426,312	2,300,000
Coal & Coke Railway Co.....	418,240	545,900	600,000
Totals.....	39,297,398	48,711,442	53,200,000

While increased tonnages have been carried by the various roads, an increase in the production has also been made, and, of course, the tonnage consumed within the borders of the State is also increasing. The above figures are just for coal transported over the railroads, and the balance of the production was consumed within the State.

A large increase is noted in the tonnage shipped to tidewater, although the Chesapeake & Ohio shipments to Newport News show quite a decrease, but the Norfolk & Western and the Virginian show large increases in the amount dumped at Norfolk. The decrease at Newport News does not mean that the tonnage over the Chesapeake & Ohio from the New River field is decreasing, as this is not the case. The Virginian is carrying a large tonnage of coal to tidewater that was formerly shipped over the Chesapeake & Ohio, and the latter road has been carrying an increased tonnage westward, so what is lost in one direction is more than made up for in another.

Statistics of production of coal in West Virginia since 1863, when the State was formed out of Virginia, are shown in a table above. The total production of coal in this State to the end of 1911 will equal more than 650,000,000 net tons. It is estimated that the original supply of coal in this State equaled 150,000,000,000 tons, and that about 99 per cent. still remains in the ground, so that it can be seen that the supply of the excellent coal from this State will last for some little time yet.

In 1909 there were 664 mines in this State from which coal was being produced, of which 48 were in the first class, 132 in the second class, 231 in the third class, 168 in the fourth class and 85 in the fifth class. In 1910 the total number of mines reached 716, of which 83 were in the first

class, 139 in the second, 197 in the third, 218 in the fourth and 79 in the fifth. It will be noticed that the number of mines in the third and fifth classes decreased, while those in the others increased. Of the production in 1909, 23.5 per cent. was from mines of the first class, which increased to 35.4 per cent. in 1910. Mines in the second class produced 37 per cent. of the production in 1909 and 30.6 per cent. of the 1910 output, the remainder

being divided among the mines of the other classes.

Mines in the first class have a production of 200,000 tons or more a year, while those in the second class produce from 100,000 to 200,000 tons, and those in the third class from 50,000 to 100,000 tons. In the fourth class the production is from 10,000 to 50,000 tons, while in the fifth class the output is less than 10,000 tons per year.

## Some Growing Communities in South Georgia.

[Special Correspondence Manufacturers Record.]

Fitzgerald, Ga., December 16.

Believing that "the development of the South means the enrichment of the nation" and also themselves, the people of South Georgia are certainly doing their part, or at least they are getting a good start toward enriching the nation.

With the wonderful fertility of the soil, with the pleasing year-round temperature, with railroads networking the whole section to the best advantage of all, with navigable rivers, with good roads and more being constructed, and with many other numerous blessings and advantages, South Georgia is rapidly coming into its own as a land of opportunity.

South Georgia is composed of fertile land. On every side, as one rides along through this section, level, cultivated and rich country greets the eyes. The people here never know what it is to have a deep

large corporation, which at the present time is having its plant built, to take from the large acreage it has bought all raw cypress material and make lathes and shingles for shipment to the building-supply trade. The plant will have a daily capacity of 60,000 feet. An Allis-Chalmers single-band mill equipment has been ordered for the new plant and will be installed on completion of the buildings. The buildings are being erected by day labor in charge of the mill superintendent, and will be two stories, frame constructed.

Albany has plans for owning all the public-service systems of the city. With a bond issue \$60,000 will be spent for a municipal gas plant. About \$40,000 will be spent in paving the main streets of the city (this includes the money from the property-owners), extending water-works and extension of sewer. All of the street work, sewer and water-main extensions will be in charge of City Engineer R. J. Edgerly. No contracts on this work will be let for construction.

Eugene B. Adams, formerly the secretary of the Board of Trade at Greenville, S. C., has become the secretary of the Albany Chamber of Commerce, and he is one of the youngest, liveliest and most resourceful commercial men that is in the business in the South. Mr. Adams has just taken up the work at Albany.

The climate of Albany is very desirable the year around. Financial institutions, of which there are four in all, are strong. Seven railroads have their terminus at Albany. It is the head of navigation on the Flint River, giving it a straight outlet to the Gulf of Mexico.

### AMERICUS.

Americus, the seat of Sumter county, is in the midst of a building era. The city alone is spending nearly \$200,000 on municipal improvements. A contract was recently let to the Creosoted Wood Block Pavement Co. of New Orleans, La., to lay 40,000 square feet of wood block pavement. In all, this will cover about two and a half miles of street. The contract will call for an outlay of approximately \$125,000. This work is now actively under way, and R. M. Hudson is the superintendent in charge. The city is paying its part of the amount involved in the deal from a \$40,000 bond issue voted recently. The balance is being paid by the property-owners.

The contract for extending the sewer system to the city limits is being executed by Contractor A. J. Wardrop. Approximately \$35,000 is being expended in this direction.

In addition to the work that is being carried on toward the extension of the sewer, City Engineer J. B. Ansley has charge of the expenditure of \$30,000 for the extension of the water-works system. This will include the construction of a new settling basin, the boring of a new artesian well and the placing of some new machinery at the city water station.

Where the Seaboard Air Line crosses

snow, and in the summer time the heat is not near so oppressive as it is for those living in the city. Pretty much the same thickness in clothes does for the year around.

South Georgia is served by several of the leading railway systems that traversing the South. Not only do these companies have their main lines through the wiregrass country, but there are many smaller railroads which operate strictly in South Georgia. These lines altogether serve all sections of the country to the very best advantage. There are many waterways. All of the rivers with outlets to the sea are navigable well up into the State, and in this way an outlet by water can be attained from almost any point in South Georgia.

South Georgia in its march of progress did not try to make the trip without good roads. Bond issue after issue has been made, and road tax and direct tax have all gone to make many miles throughout the prosperous section. And still the good work goes on. The prosperity is evident on every side.

### ALBANY.

To the South goes the distinction of raising the most pecans. A center of this industry is Albany. G. M. Bacon is the originator of the pecan industry in Georgia. His orchards are a few miles from Albany. He is known as the "Pecan King," he having made expensive experiments and devoted the better part of his life to growing them. Thousands of acres of land in Georgia are planted in these profit-making trees, and many more will be planted before another year passes.

Albany has many manufacturing plants. One of the latest to enter the field is the Flint River Cypress Co., an organization capitalized at \$250,000 and with E. J. Marsh as president. It is the plan of this

one of Americus' streets this company is constructing a new ornamental concrete bridge. This will add materially to the good looks of the street.

Construction on the part of individuals and firms is also in evidence. The Commercial City Bank, of which J. W. Wheatley is president; Crawford Wheatley, vice-president, and R. E. McNulty, cashier, will complete about the first of the year a new bank building to cost about \$40,000. This building is being constructed of Indiana limestone by Contractors Little & Phillips of Cordele, Ga. The fixtures are being furnished by the Georgia Showcase Co. of Columbus, Ga.; the stone work is being done by W. J. Collins, originally of Philadelphia, but temporarily of Americus. The vaults and safes are being furnished by the Mosler Safe Co. of Hamilton, O. The building is being modeled after the latest ideas in bank architecture, and will make a fine appearance from its location. The Commercial City Bank is capitalized at \$50,000, and has resources of \$463,000. The Planters' Bank, of which L. G. Council is president and H. S. Council cashier, is capitalized at \$50,000 and has resources of over \$651,000. The American National Bank, L. A. Lowry, president, is another Americus bank. It has a capital stock of \$100,000 and has resources of 550,000. The Bank of Southwestern Georgia has a capital stock of \$100,000, and is officered by A. W. Smith, president, and N. M. Dudley, cashier. The Bank of Commerce, of which J. W. Sheffield is president and Frank Sheffield is vice-president, is capitalized at \$65,000 and has resources of over \$133,000. In these financial institutions Americus and Sumter county have ample and safe places to place their funds, and the statements printed herewith show the confidence of the people in these banks.

In the Board of Trade Americus has a live organization that looks after the material upbuilding of the city and community. The president of this organization is Crawford Wheatley, and the secretary is C. J. White. Plans are now being prepared by the board to issue a descriptive booklet on the city.

According to a statement made by the Board of Trade, there are 30 manufacturing industries; two railroads, the Central of Georgia and the Seaboard Air Line, and nine jobbing and wholesale firms doing business in Americus. It is located on the Andersonville-Thomasville route for automobiles, which is well constructed of sand and clay from one end of the county to the other.

Of special mention in the attractions of the city is the Windsor Hotel. This was recently purchased by L. G. Council, and over \$100,000 was spent in remodeling and placing new equipment. Included in the expenditure was the construction of an individual ice plant, an electric-lighting plant, refrigerating system and cold storage, and a complete laundry. The manager of the hotel is George R. Gardner.

A two-story Carnegie Library, a three-story brick Young Men's Christian Association building and a one-story stone Government building have all materialized within the last few years. The Third Congressional District Agricultural College is also here. This has two brick two-story buildings at present, while the foundation for the third of similar size is being laid.

#### MOULTRIE.

Moultrie, the county-seat of Colquitt, is a fast growing town. There are a number of large manufacturing concerns. Good roads are being built in and around the city and other important improvements are contemplated. Among the important industries of the city are the Moultrie Cotton Mills, W. C. Vereen, president, and W. J. Vereen, secretary



POTATOES FROM CUTOVER LANDS.

J. K. Dunn of McComb, Miss., wholesale dealer, is very busy shipping yellow yam sweet potatoes and cane syrup in cans. He has 25 or 30 cars of syrup and potatoes yet to ship, and is shipping only fancy stock. McComb is in what is known as the "cut-over pine land" district of Mississippi, the sandy soil being especially adapted to potatoes and cane. For the past two years Mr. Dunn has been advocating and urging diversified crops. Both he and the farmers are delighted with results, finding that more money can be made on other crops than cotton, with less labor and expense. Prospects are bright for large crops of potatoes and cane another year.

and treasurer, having 11,000 spindles and 280 looms in operation in two well constructed brick buildings; the Colquitt County Cooperage Co., with W. C. and W. J. Vereen as principal stockholders, manufactures annually 30,000 white-oak barrels; the Riverside Manufacturing Co., J. C. Macon, secretary, makes daily about 100 mattresses and accompanying pillows; the Moultrie Oil & Fertilizer Co., with Dr. G. F. Taylor as president, is capitalized at \$75,000; the Ladson Lumber Co., the Moultrie Cotton Oil Mills, the Moultrie Iron Works and a number of other plants that do business of a local nature. The Chamber of Commerce of Moultrie, E. F. Vickers, secretary, states that the banking capital of the city is \$225,000 and the resources \$1,500,000.

#### THOMASVILLE.

The citizens of Thomasville will on January 16 decide whether \$50,000 of bonds will be issued for school buildings. If the issue carries, about \$40,000 will be spent on a new high-school building and the remaining amount will be used for repairs.

The Atlantic Coast Line will, after the completion of the buildings now under construction, establish the division repair shops of the second division at Thomasville. The contract for the work has been let to J. C. Vaughan of Thomasville. The expenditure, which amounts to \$75,000, calls for the erection of a frame and metal constructed roundhouse, one story; a frame and metal constructed shop building, one story, 40x70 feet; an engine-room, 30x60 feet, frame construction; an office building and storeroom, one story, 30x75 feet, and a cypress water tank. All buildings will have concrete foundations. In addition to the buildings that will be constructed, about two and a half miles of track will be taken up by Contractor Vaughan and replaced by new. A concrete ash pit is being constructed approximately 100 feet long. The work will be finished about January 15, 1912.

The Thomasville Fertilizer Co., J. W. Bell, manager and secretary, is erecting a plant preparatory to beginning business at an early date. The plant will consist of two frame buildings, with the necessary machinery for equipment, and a brick office building. The company is capitalized at \$30,000.

Thomasville at one time was noted as a tourist center, but since the building of one and the closing of another of the four original and excellent commercial and tourists' hotels it has become more of a

manufacturing and agricultural center. Still, the present hotels are doing a good winter tourist business.

There are quite a number of wholesale lumber dealers and firms in Thomasville. The lumber industry has caused the creation of quite a number of manufacturing plants in and around the timbered belt of South Georgia. However, its greatest accomplishment for the good of the community has been in the creating of more fertile farm lands. Many thousand acres of "South Georgia 'cut-over'" lands have been sold and converted into desirable farms.

Thomasville has in its mean temperature and balmy air an asset that is not to be overlooked. Plans are now being formulated by the citizens to equip the present hotels so as to make the place more attractive to tourists and in many other ways make an effort to regain its past record as a winter resort. There are quite a number of winter homes owned by prominent people from different parts of the country located in Thomasville.

#### TIFTON.

Tifton is making an effort to have itself placed on the map as the distributing point in the South Georgia, Northern Florida and Southern Alabama territory for outside firms doing business through branch offices. Three railroads serve Tifton and Tift county, namely, the Atlantic Coast Line, the Atlanta, Birmingham & Atlantic and the Georgia Southern & Florida. These three companies have lines running out of Tifton toward every point of the compass.

Good roads have received considerable attention in Tift county. Nearly 22 miles of sand and clay roads have just been completed from one end of the county to the other on the line mapped out for the national highway. In addition to this, plans have been made by Capt. H. H. Tift and work will begin about the first of the year to construct around the city, in a circle, an automobile boulevard. On this highway five-acre tracts of land will be subdivided and made into dairy, fruit and poultry farms. The idea is to make Tifton a "city of farms."

Recently organized in Tifton was the South Georgia Land and Agricultural Exposition. On its 26 acres of land very near the city and in its 10 new buildings this association held its first annual fair last fall. Exhibits from most all the leading South Georgia counties were on display. The exposition was unanimously pronounced a success, and the second year

of the exposition will be entered with even larger anticipations of success.

#### FITZGERALD.

Fitzgerald has a population of 5795 according to the last Government census, yet it does business equal to a city much larger. This is due to the fact that it is surrounded by many small truck farms and plantations. All these farms are tributary to Fitzgerald, and a lot of the credit of Fitzgerald being a "good town" should be given to the "colony" farmers of Ben Hill county, as well as the progressive business people at the county-seat.

There are several large manufacturing plants here. Among them is a foundry and machine shop, a cotton mill, the Atlanta, Birmingham & Atlantic shops for this division, two cement and artificial-stone making plants, two oil and fertilizer mills and several other more or less important local-interest plants. There are two newspapers and four banks. The real estate firm of J. A. Justice & Co. is planning large things for the town and county.

ROY G. BOOKER.

#### WET LAND DRAINAGE.

A Convention at New Orleans to Further the Undertaking.

[Special Dispatch to Manufacturers Record.]

New Orleans, La., December 20.

Preliminary details have been arranged here for the first meeting of the National Drainage Congress, which will be held in New Orleans April 9-13 next. Edmund T. Perkins, president Chicago Irrigation Association, formerly chief of the reclamation service of the United States, now acting president of the National Drainage Congress, organized at the meeting last week in Chicago of the National Irrigation Congress, met representatives of the commercial organizations of New Orleans and explained the purposes of the movement. Committees covering every feature of the coming convention were appointed, and from the information given it seems probable that a most notable gathering of representative citizens from the 24 States in the Mississippi Valley directly affected by drainage will be in attendance. The appointed delegates will number several thousand, and a very large attendance is considered certain.

Mr. Perkins gave out figures showing that \$68,000,000 have already been expended in irrigation work in sections of the West, and \$48,000,000 more are in the United States Treasury available for irrigation purposes. Capital to the extent of \$5 to \$1 of the Government expenditure has been invested through private enterprise. The possibilities in the drainage of the wet lands and the Mississippi Valley offer even greater opportunities for developments. The statement was made that there are 3,500,000 acres of reclaimable wet lands immediately contiguous to New Orleans, and that this is 500,000 acres more land than has been irrigated or is in process of irrigation by the Government, with all the millions it has spent.

ALBERT PHENIX.

#### Building at Raleigh.

[Special Cor. Manufacturers Record.]

Raleigh, N. C., December 18.

Secretary Fred A. Olds of the Chamber of Commerce has reported that during the year there have been constructed in this city 51 buildings, costing more than \$3000 each, and aggregating in value \$1,436,000. There have been a great amount of minor construction and of improvements of every kind. The growth of the automobile business is indicated by the establishment of four new garages. There are 64 industrial plans in operation.



# South Carolina's Capital City Active in Building Operations.

[Special Correspondence Manufacturers Record.]

Columbia, S. C., December 14.

Following a period of unprecedented activity in the real-estate market, Columbia, the capital city of South Carolina, is rapidly building. The cost of the structures for which plans are now being drawn, those under contract and in the course of construction will aggregate over \$2,000,000. This estimate includes three office buildings of 10, 12 and 14 stories, respectively, two new hotels, several stores, an elaborate arcade structure and church edifices, all within the city limits.

About 18 months ago Columbia adopted the commission form of government. Dur-

ing way by March, 1912. Plans for the structure are now being drawn by W. A. Edwards, an architect of Atlanta. The contract will be let within a month. The office building of the Union National Bank will be 10 stories high. The lower floor will be occupied by the bank and the transfer office of the Columbia electric street railway. The building will be an L-shaped structure with a frontage of 26 feet on Main street and 103 feet on Gervais street. The L extension will run back 56 feet from Gervais street. The exposed fronts of the building will be of white glazed terra-cotta, and the other

Main and Washington streets for the Palmetto National Bank by the Palmetto Construction Co., of which John J. Seibels is president. This building will have 14 stories. The first floor will be occupied by the Palmetto National Bank. The typical floor plan of the floors above the first provides for 13 offices, but this will be modified in certain instances to suit individual tenants. The building is being designed by Israel & Harder of New York. Julius H. Harder, a member of the firm, recently visited Columbia to confer with the officers of the Palmetto Construction Co. and prospective tenants as to details of construction. The exposed fronts of the building on Main and Washington streets will be of white glazed terra-cotta.

All three of the proposed office buildings will be fireproof, and built in accordance with the most advanced ideas on "skyscraper" construction.

Columbia's two new hotels, one of which is to represent an investment of \$250,000,

contractor expects to complete the arcade by the first of March, 1912. The interior of the building will be highly ornamented.

A modern building for commercial purposes is now being built at the corner of Main and Taylor streets at a cost of \$30,000. This building will be ready for occupancy on January 1, 1912. It will have two store rooms fronting on Main street and three store rooms and a barber shop opening on Taylor street. The upper floors will be used for offices and lodgerooms. J. B. Urquhart of Columbia is the designing architect, and the Richland Construction Co. the contractor. The exterior of the building is of pressed brick, with Indiana limestone and marble trimmings.

Still another three-story building for business purposes is in the course of construction on Main street on the block between Blanding and Laurel, just opposite the Federal building. A. W. Hamby is the contracting architect. The building



ORIGINAL COLUMBIA SKYSCRAPER.

ing 1911 the commissioners appropriated \$136,000 for the permanent improvement of streets. In 1912 the city expects to have \$160,000 to use for the same purpose. Early in 1912 Columbia will have completed the last of the 25 blocks of paving contracted for in 1911. Nine blocks have already been finished, and the work on the remaining 16 is being pushed as rapidly as possible. Half of the cost of paving the streets of Columbia is borne by the owners of the property abutting on them.

When the three office buildings, for which plans are now being prepared by architects, are completed, the business and professional men of Columbia will have about 400 new offices placed at their disposal. It is expected that all three of the proposed "skyscrapers" will be begun in 1912.

Probably the first office building upon which construction work will be started is that of the Union National Bank. Joseph Norwood, president of the bank, expects the work of building to get under

sides of light-colored brick. The floors above the first will contain nine offices. This building will be almost in the geographical center of Columbia.

The National Loan and Exchange Bank, of which Edwin W. Robertson is president, has announced its intention to duplicate its present 12-story building, which was the first "skyscraper" to be erected in either of the Carolinas. The new office building proposed by the National Loan and Exchange Bank will front on Washington street and be connected with its "twin" by a structure of steel and plate glass, which will contain a battery of high-powered electric elevators, and at the same time admit an abundance of light into the offices. The new building will contain 172 office rooms. It is being designed by James Brite of New York, the architect who drew the plans for the original "skyscraper" of Columbia and the Carolinas.

The tallest office building of the three will be erected at the southeast corner of



UNION NATIONAL BANK BUILDING.

will be at opposite ends of the business section of the city on Main street. Excavation for the foundations of one of the hotels is practically completed. Both are assured, and will be erected during the coming year, but just at present the men behind the hotel projects prefer not to give out their plans in detail.

The Equitable Real Estate Co. of Columbia now has in the course of erection an arcade building which will cost \$135,000 when completed. The John J. Cain Construction Co. is erecting the building. The structural parts are of concrete and steel. The fronts of the building, which will be two stories high, will be of white glazed terra-cotta. There will be two entrances, one on Main street and the other on Washington street. The arcade adjoins the present office building of the National Loan and Exchange Bank, and will adjoin the proposed office building which the banking house will erect on Washington street. There will be an eight-foot alleyway between the two. The

will cost \$16,500. The first floor contains two store rooms.

A neat one-story brick building will be erected at the corner of Washington and Assembly streets, taking the place of several unsightly fire-traps which now occupy the premises. The building will contain 11 spacious store rooms, six fronting on Washington street and five on Assembly. It will be a very considerable addition to that part of Columbia's business section in which it is located. Shand & Lafaye of Columbia designed this building. The contract will be let on December 20.

Just at present there is not a single vacant store room on Main street in Columbia, and scarcely any offices for rent in the business section. The buildings now in the course of construction will supply the present demand for store rooms and offices to a certain extent, while those proposed will in a degree take care of the future needs of thriving Columbia.

Besides the proposed office buildings, hotels and business structures, Columbia

has a six-story Young Men's Christian Association building going up on Sumter street between Hampton and Lady streets. When completed and furnished it will cost \$135,000. The contracting firm recently went into bankruptcy, but the receiver appointed will continue the erection of the building. Nearly all the steel framework is in place, and the walls have been carried up three stories. The Y. M. C. A. building, which was designed by Shand & Lafaye of Columbia, is being built along the same lines as structures for this organization in the larger cities. The first two stories will be given over to gymnasiums, offices, reading-rooms, an auditorium and the like, while on the four upper floors there will be 84 bedrooms. The building will be fireproof in its construction.

A new Lutheran Sunday-school building, costing \$15,000, was recently dedicated, and a new Baptist church will be completed in two months. The latter will cost \$13,000. Just outside of the corporate limits of Columbia a Lutheran Theological seminary has been built, and was opened last October. This addition to Columbia's educational facilities cost \$45,000.

The building developments in the residential districts are keeping pace with those in the business section, but Columbia, which already has several thriving suburbs, will have to spread out still more if the increase in population which is expected in the next five years takes place. Several apartment-houses have been lately built, and all of them are crowded. The real estate men complain that there is a lack of homes for rent just at present, but this will be remedied to a certain extent in the near future.

With so much construction work under way and so much more proposed, Columbia will need many skilled artisans and hundreds of laborers next year. Contracting firms asked the Columbia Chamber of Commerce two months ago to advertise for all classes of labor, and this is now being done. There is and will be an abundance of work in Columbia for men who follow the building trades.

Under the terms of the contract upon which Columbia does its permanent street improvements, the city pays half the cost and the property-owners are allowed 10 years in which to pay for their share. The commissioners must be petitioned by at least two-thirds of the owners of abutting property before a street will be permanently improved. The commission now has petitions from property-owners asking that the streets along which their property borders be permanently improved, which will about absorb the available appropriation for street paving for two years to come.

During 1911 the commission has used three different kinds of paving material, which it selected with a view to its availability in the locality where it was to be laid. As a general rule, the commissioners of Columbia have shown a preference for bitulithic on residence streets, vitrified brick on a business street where there was a slight grade, and creosoted wood block on business streets which were level. The Columbia Electric Street Railway Co. has used vitrified brick as the material for paving between its tracks, which run down the streets which have been permanently improved. All the paving has been laid on a five-inch concrete base.

The commission is now paving six blocks on Gervais street, around which Columbia's wholesale district centers, with vitrified brick. This street is 64 feet wide, and has a slight grade. The paving is being laid on a five-inch concrete base by Weston & Brooker, a contracting firm of Columbia for \$2.10 per square yard. The street is curbed with granite. A concrete

storm sewer, laterally connected with intersecting streets, ranging from 36 to 48 inches, has been laid down Gervais street. The paving will soon be completed.

On Hampton street, a partly business, partly residential thoroughfare, the commission is paving eight blocks with bitulithic, which is being laid by the Atlantic Bitulithic Co. of Richmond, Va., George O. Tenny, president, at a cost of \$2.12 per square yard. Along Hampton street, gas mains, water mains and sanitary sewers are being laid with lateral connections to the building lines to avoid street evacuations in the future. The paving is being pushed with all possible speed.

Two more blocks of Hampton street, on either side of its intersection with Main street, are being paved with creosoted black gum blocks at the rate of \$2.45 per square yard, which includes the five-inch concrete base. These two blocks, which are being paved with wood, are in the center of the business section of Columbia. The paving is being laid by Weston & Brooker of Columbia.

The permanent improvement of the 10 blocks of Hampton street will cost \$3,000, which will be paid out of the city's appropriation for 1912.

Two blocks of Washington street in the business section of Columbia have been paved with wooden block. This work was completed some time ago. Four blocks on Sumter street, two of which are in the residential and two in the business district, have been paved with bitulithic, as has one block of Pendleton street. The paving of Pendleton and Sumter streets connects the business district with the union station. In 1908 Columbia paved its Main street with bitulithic from the union station to the State Capitol grounds, and from Gervais street to the northern city limits, 17 blocks in all. The Capitol grounds are not open to traffic, and a detour is necessary from the southern part of Main street up Pendleton into Sumter street, in order to reach the main business section. The completion of the paving on Pendleton and Sumter streets gives Columbia a continuous paved thoroughfare from the union station, near the southern city limits, to the northern boundary of the city.

The commission has let the contract for paving two blocks of Lady street, on either side of its intersection with Main street, with creosoted wood blocks. Lady street is undergoing a transition from a residence to a business street, as are several other streets near their intersections with Main street. The work of paving will be begun in the near future.

Besides street paving, the commissioners of the city of Columbia have other permanent civic improvements in view in 1912. Among them is the building of a \$15,000 abattoir, a new city jail and a possible enlargement of the water-works system.

Another step forward which Columbia will make before the end of 1911 will be the placing of the mercantile risks on the first-class basis rate made by the Southeastern Underwriters' Association. This was caused by improvements in the fire department and the water-works system which the commissioners made at the direction of the Underwriters' Association.

The five commissioners of Columbia who have been in office for about 18 months are: Wade Hampton Gibbs, Mayor; R. W. Shand, J. R. Blalock, R. C. Keenan and W. F. Stieglitz.

The city of Columbia contains four square miles. The United States census report for 1910 gives Columbia a population of 26,316. This is exclusive of the thriving and thickly populated suburbs just outside the city limits.

A. D. OLIPHANT.

## BIRMINGHAM DISTRICT.

### The Iron Market on the Verge of a New Year.

[Special Cor. Manufacturers Record.]

Birmingham, Ala., December 18.

A great deal has been said recently about the low prices that have been made on pig-iron during the buying movement the latter half of November. It can be said definitely that no No. 2 foundry nor No. 2 soft, by fracture grade, sold anything like so low as some reports stated, these reports in some instances being as low as \$9.25 for No. 2 iron. Some iron carrying silicon 2 to 2.50 per cent. did sell as low as \$9.50 and \$9.75 Birmingham, but the fracture grades were not guaranteed at all. A \$10 price so nearly represents the average cost for the best of furnaces that it is hardly to be expected any material concession below that figure has been made or will be made on Alabama iron. A fair tonnage was booked by several of the leading interests during the past week, and the bulk of this was at \$10, and, in fact, all of it on the \$10 basis except some sales of particular brands that brought a premium. There are still some inquiries pending which are expected to be closed before the advent of the new year, but it is not believed that any price better than \$10 will be named in the contracts when they are finally closed. Some few requests are coming in for a suspension of shipments for a week on account of so many foundries being idle for a week or 10 days around the Christmas holidays. Still the total shipments for December will be very good indeed, and it is not believed that stocks will make any increase during December on furnace yards here. There is no change to record in the producing rate, prices remaining quotable on the following schedule per ton of 2240 pounds f. o. b. cars Birmingham furnaces: No. 1 foundry and No. 1 soft, \$10.50; No. 2 foundry and No. 2 soft, \$10; No. 3 foundry, \$9.50; No. 4 foundry, \$9.25; gray forge, \$9.25; mottled and white, \$9. Basic iron is bringing \$10 for standard grading.

There continues an unusually splendid demand for all kinds of steam and domestic coal in this territory, and orders are being turned down in some instances because of inability to ship the coal before the holidays. The prices, however, are about the same as have been ruling previously, namely, \$1.15 to \$1.50 at the mines for steam coal, depending on the quality. Domestic coal of good grade is bringing \$2.75 to \$3 at the mines. There seems to be a fair supply of coal miners in the district at this time, and they are all working at a good rate thus far in December.

Foundry coke is in slightly better demand, with fair shipments here in the South and also from Southern ovens to the Pacific Slope. The best grades are bringing from \$3 to \$3.75 per net ton f. o. b. cars ovens.

Some fair business has recently been done in furnace coke at prices ranging from \$2.25 to \$3 at the ovens.

The Birmingham district pipe plants seem to have had a continuance of good business, and, considering the low price of iron which has prevailed the greater portion of the year, it is believed that all water-pipe makers will show fair results on their business when the year's work shall have been totaled up. Those foundries that are now running on water pipe have been very busy the entire year, and it is understood they have on their books now quite a nice run of orders carrying a reasonable profit. The principal buying still comes from the towns and cities that have not heretofore installed sewerage systems. At the same time there con-

tinues a good inquiry from the older cities for water pipe to extend water mains and sewerage lines. Quotations remain firm per net ton f. o. b. cars Birmingham foundries as follows: 4-inch to 6-inch water pipe, \$22.50 to \$23; 8-inch to 12-inch water pipe, \$22; 12-inch and over, average \$21. Gas pipe takes the regular differential of \$1 per ton. Special fittings bring prices in the neighborhood of \$50 per ton, depending upon the nature of the fitting.

The scrap-iron market continues to occupy about the same position that has been previously noted in these columns. At the same time there has been some evidence noted of a disposition to pick up bargains in quotations. The movement is slightly better, and it is thought that immediately after January 1 all lines of old material will show marked improvement. Dealers continue to quote prices f. o. b. cars their yards per ton of 2240 pounds as follows:

Old iron axles, standard, \$15.50 to \$16.  
Old iron axles, small, \$12 to \$13.50.  
Old steel axles, light, \$13 to \$13.50.  
Old steel axles, standard, \$14 to \$14.50.  
Old iron rails, \$13 to \$14.  
No. 1 railroad wrought, \$11.50 to \$12.  
No. 2 railroad wrought, \$8 to \$8.50.  
No. 1 country, \$7 to \$7.50.  
No. 2 country, \$6.50 to \$7.  
No. 1 machinery, \$8.50 to \$9.  
Standard car wheels, \$11 to \$11.50.  
Tram car wheels, \$8 to \$8.50.  
Light cast and stove plates, \$7 to \$7.50.

Birmingham people are very much interested now in the effort being put forth for the building of a thoroughly modern, up-to-date fireproof hotel, and it is believed that in the next two weeks something definite will be announced by the committee appointed recently in behalf of the Chamber of Commerce to develop plans for securing such building.

To sum up, it seems that the prospects for the Birmingham district are unusually bright for the new year, and Birmingham certainly will enter the new year on as firm foundation as the most optimistic have hoped for. It is believed that mining and manufacturing interests here are going to have a splendid year, despite the fact that 1912 will be a political year and what is generally considered an off year in manufacturing lines. There seems to be a disposition generally to consider that political questions have been, to a large extent, discounted by the big business interests of the country, and it is felt that Birmingham will go forward at a new rate and on a more prosperous scale than ever before.

### Additions to Wheeling's Strength.

Board of Trade.

Wheeling, W. Va., December 16.

Editor Manufacturers Record:

In the near future the Bloch Bros. Tobacco Co. will begin the erection of a four-story addition to its factory. The building will be 100x100 feet, and the most modern construction will be used to make the building strictly fireproof.

The First National Bank of Elm Grove is now erecting a new home at a cost of \$30,000, which will be completed about the first of the new year. This building will be one of Wheeling's finest suburban banks. The Mound City Bank of Moundsville is also erecting a new structure which will be completed about the first of the year.

The business men of this city are now waging a vigorous campaign for \$250,000, which will be used for the erection of a first-class modern fireproof city hospital; \$225,000 of this amount has now been secured, and from the present outlook the balance will be secured within a few days. Work will be started on the structure at once.

R. B. NAYLOR, Secretary.



# Search for Potash in This Country.\*

By HOYT S. GALE.

The present active interest in the subject of potash, and especially the hope of developing an American source of supply, has seemed to warrant the early publication of a statement outlining the plan under which the investigations assigned to the United States Geological Survey are being conducted, with a summary of the evidence on which is based the project of drilling for potash in Northern Nevada. The appropriation for this work became available July 1, 1911. After that date a drilling outfit was selected and the order placed for its manufacture. This equipment was delivered at Fallon, Nev., on September 19. Drilling commenced on October 6, and the well is now (December 1) 360 feet deep. Crystallized beds of saline material have not yet been reached in the strata penetrated. It is expected that drilling will be continued until a depth of at least 1000 feet is reached.

The assumption that concentrated beds of workable and commercially valuable salines may exist in the strata underlying the Great Basin deserts rests chiefly on the work of Gilbert and Russell. The discovery of such deposits, though its likelihood is supposed to be supported by the best information available at the present time, should perhaps be regarded as a possibility rather than a probability. Inquiries are being received asking for an estimate of the probabilities of success in such an enterprise, with special reference to private undertakings based on the same plans. This is a matter of judgment, and each inquirer is left to draw his own conclusions from the evidence presented in the following pages. The value of this possibility has, of course, been carefully considered, and it is believed that as a public enterprise a reasonable test, at least, is not only justified, but highly desirable.

Field and laboratory investigations to be conducted by both the Geological Survey and the Bureau of Soils are thus provided for. In recent years the annual appropriation for the work of the chemical and physical laboratories of the Geological Survey has been \$20,000, so that the addition of \$20,000 to this item in the current appropriation was made with an understanding that the amount of the increase should be devoted to the investigations relating to potash in this country.

At a conference for preliminary discussion of plans it was mutually agreed with the Bureau of Soils that the funds appropriated for this work should be administered in a spirit of co-operation so far as possible, and that duplication in work or in territory should be avoided. A review of the field that might be covered in such an investigation seemed to outline at least two methods of approach. The first lay in the field of industrial chemistry and concerned the possibilities of developing new processes for the extraction of potash from mineral or organic sources already known. The second consisted of an exploration of the regions supposed to be favorable to the occurrence of potash, in the hope of finding some new deposits or possibly even some new form of deposits.

In the spring of 1911 the United States Geological Survey issued a pamphlet in which the principal occurrences of potash were summarized and briefly discussed.

The following possible sources were mentioned:

1. Igneous rocks.
2. Greensand marls of New Jersey and certain marls in Kentucky.
3. Alunite.
4. Salines.
5. Organic sources, including wood ashes, beet-sugar molasses and residue, wool scourings, seaweeds.

After some conference it was concluded to confine the Geological Survey investigations principally to field work and necessary chemical work relative thereto on the mineral saline deposits, and in planning this work attention was naturally directed to the arid regions of the Western States. The utilization of the potash-rich igneous rocks or the greensand marls is a problem for the industrial chemist. Recently discovered deposits of massive alunite offer much promise of successful development as a source of commercial potash as well as of alumina. These will be described in other reports to be issued at an early date. The possibility of obtaining commercial potash from some of the organic sources is recognized as worthy of serious and careful consideration.

After a consideration of the several fields of research open, it was decided to confine the activities of the Geological Survey under the present appropriation to work on the mineral saline deposits and to devote a large part of the funds provided for this work to the project of drilling for possible undiscovered deposits of the buried salts.

The choice of drilling equipment, organization of the party and selection of the drilling sites was assigned to the writer under the counsel and direction of C. W. Hayes. James H. Hance was assigned to assist in the administration of the drilling party, and is now also collecting and testing the samples obtained from the borings. George Lawrence of Rock Springs, Tex., as driller, is in charge of the mechanical part of the work. He is assisted by J. M. Weeks. An investigation of saline deposits and of the possibility of recovering potash from the mother liquor of the producing salt plants in the territory east of the Rocky Mountains has been conducted during the season of 1911 by W. C. Phalen, under the general supervision of David T. Day.

The first field work in connection with the potash investigations by the Geological Survey was done in Southern Wyoming. The Permian or Triassic "Red Beds" of the Rocky Mountain region, and, in fact, throughout the West, are known to be rich in salines, and for many reasons suggest the possibility of deposits of the Stassfurt type. As the more soluble salts of the "Red Beds" are rarely preserved in outcrop intact from corrosion or solution in the surface waters, the suggestion has been repeatedly presented that these beds should be tested by drilling at depth through undisturbed sections. Several fields where salines in these rocks are known to be prominent have been named for such a test, but the saline deposits of Southern Wyoming were among the first suggested as offering a favorable field for review. Accordingly, the data relating to the Wyoming salines were collected and studied, and this work was followed by field examination.

The surface accumulations of salines in the Great Basin are among the most characteristic features of the deserts. These

deposits include the so-called dry lakes, playas or mud flats, alkali flats, salt marshes, and alkaline efflorescences in various forms. There are also alkaline lakes whose waters carry saline material in greater or lesser amounts. Springs charged with mineral matter are rather common in certain parts of the deserts. Nitrate salts in soils and in caves and ledges have been found at a number of places, but these are not conspicuous in form and are of more exceptional occurrence.

It is probable that numerous chemical data concerning the nature of the alkaline salts in the Great Basin deserts are already in existence. Some of these are to be found in published form, and perhaps a larger number consist of commercial analyses so scattered that they will be difficult to assemble. Salt, sodium carbonate, sodium sulphate and borax have been more or less profitably worked in many parts of the region. One of the most natural suggestions in undertaking a search for potash in association with other desiccated alkaline-water deposits is that a review should be made of these superficial salt deposits, accompanied by systematic tests for such potash as they may contain. While this is a field of investigation that should not be overlooked, it is clearly open to the prospector, who, when once his attention has been directed thereto, may to a certain extent be trusted to develop anything of evident commercial value. The offer of the Geological Survey to make tests for potash at the laboratory established at Fallon, Nev., was made in the hope that some such surface deposits of potash might be identified if they do exist. As yet, however, most of the results obtained from this random method of collecting samples have been negative.

Many of the alkali flats and salt marshes that exist in the Great Basin area are indicated on the State maps published by the General Land Office. It would, perhaps, be desirable to compile a list or map which would show all these areas.

On the publication in mining journals and elsewhere of the announcements to the effect that investigations relating to potash were to be conducted by the United States Government, many inquiries as to the occurrence of potash, etc., were received by the Geological Survey. Many of these inquiries included samples accompanied by requests that they be tested for potash. As such tests were deemed to be within the meaning of the act providing for this general investigation, provision was made for the examination of a reasonable amount of such material. Accordingly, a notice was given to the press stating that a laboratory would be fitted up at Fallon, Nev., where samples could be submitted. As a result the number of such requests has largely increased.

The only tests it is usually intended to make are on the water-soluble salts, or salines. Practicable methods of extraction of potash from the insoluble forms have been stated to be not yet satisfactorily worked out. Preliminary examination of most of the saline samples has been made with the spectroscope. This simple test at once eliminates all those samples containing a small percentage of potassium as not warranting further chemical work. If a sample appears to be promising as a possible source of potash, it may then be submitted to the usual analytical tests for potash.

By a recent arrangement a co-operative laboratory has been established at the Mackay School of Mines, University of Nevada, at Reno, in which the University of Nevada, the Bureau of Soils of the United States Department of Agriculture and the United States Geological Survey

have combined in the interest of the potash investigations. This laboratory is under the administrative charge of Prof. George J. Young at the Mackay School of Mines. Hereafter communications relating to such potash tests and samples for analysis may be directed to Professor Young. Such tests as are deemed warranted will be made on the samples, subject to the limitations of equipment and capacity of the laboratory.

A few requests have been received for the determination of supposed nitrate and phosphate samples. There is no provision in the equipment of the laboratory at Fallon for these tests, but it is expected that the Reno laboratory will be able to handle a reasonable amount of that work also.

The idea of developing a possible domestic source of potash salts is by no means new. The problem has probably been considered many times in the past, but as much of the work that has been done did not yield concrete results, little record of what may have been accomplished has been preserved.

In the commercial field at least one company was organized in the interest of potash as early as 1889. This was the United States Potash Co., incorporated in Michigan "for the purpose of locating, testing and developing lands in the United States or Canada on which potash may be found, in the hopes of discovering a valuable bed of the mineral." The field operations of this company extended from July, 1901, to some time in 1904. General field investigations were conducted in the United States and elsewhere, and some drilling was done at a site near Cody, Wyo., under the management of William M. Courtis. Mr. Courtis states that he began his field investigations on this subject in 1883, and that he was forced to suspend work before these operations had been brought to a satisfactory conclusion.

Since the recent stimulation of interest in the possibility of finding potash in this country a number of companies have been formed for the purpose of exploiting or developing the deposits in various forms. According to a late announcement, it is understood that an attempt will be made to exploit the rock of the Leucite Hills, in Southern Wyoming, as a commercial source of potash. This subject will be considered more at length in a report soon to be issued. Another company has recently issued circulars announcing the intent to drill in Railroad Valley, Nev., following essentially the same general plan as that of the Geological Survey outlined in this report. The successful outcome of any one of these projects is naturally a matter of immediate interest in connection with the Government investigations on the same subject.

A brief examination of the Railroad Valley field was made by the writer in the latter part of October, 1911. Railroad Valley lies about 200 miles southeast of Carson Sink, about midway between Tonopah and Ely, on the usual route of travel across country between these places. Saline efflorescences or incrustations occur about the margin of a large mud flat near the northern-central part of the valley. This flat appears to be the lowest point of depression of an extensive interior drainage basin. The salt marshes are indicated on the land-survey plats in Tps 8 and 9 N., R. 56 E.

It is said that in former times these salts were collected by hand scrapping, in part for domestic use but principally for the chlorination of silver ores at Tybo, a mining camp about 45 miles distant, on the west side of the Hot Creek Valley. At one time in the history of this camp the use of the Railroad Valley salt was discontinued and a supply obtained from

\*From an advance chapter of Contributions to Economic Geology, of the United States Geological Survey.

Great Salt Lake at a considerably increased cost. Some correspondence concerning the matter includes a statement from the superintendent at Tybo to the effect that the large percentage of potash contained in the Railroad Valley salts interfered with the chlorination process. This is said to have attracted attention to the valley when the present interest in potash deposits was aroused.

Many samples of the surface salts from the Railroad Valley salt marsh are reported to have been tested, and some of these are said to have shown a rather large percentage of potash salts. Ten samples were collected by the writer from the surface incrustations on the east side of the mud flat in T. 7 N., R. 57 E., and the salt pans in secs. 1, 2 and 3, T. 8 N., R. 56 E., near the north line of the township. The potash determinations made by J. G. Fairchild in the laboratory of the Geological Survey at Washington showed from 1 to nearly 11 per cent., with an average of nearly 5 per cent. potassium in all the samples collected. The maximum showed 10.74 per cent. of potassium (equivalent to the actual content of 20.5 per cent. potassium chloride), the other determinations on the same sample being: Insoluble in water, 4.8 per cent.; alkalies weighed as NaCl + KCl, 93.68 per cent.; chlorine, 51.40 per cent.; calcium and magnesium, none.

It is probably somewhat doubtful if the salt crusts formed in or near such playa lakes or flats give much indication of either the existence or the chemical character of possible saline deposits lying at a considerable depth below them. Such surface deposits are probably not ordinarily brought up in springs or moving ground waters from great depths, but rather crystallize on the surface by evaporation of shallow ground waters which rise through capillary action, or with the varying level of the water table.

However, Railroad Valley was, with little doubt, occupied by a Quaternary lake to a depth of several hundred feet. It is possible also that other and larger lakes occupied this basin in pre-Quaternary time, but the evidence of their existence is not so clear or certain. The geologic history of the Quaternary lake is probably similar to that of Lages Bonneville and Lahontan. The mountain ranges surrounding the drainage basins tributary to Railroad Valley are composed largely of acidic eruptive rocks. These are rhyolites, and trachytes or andesites, known to be rich in potash-bearing minerals. It is probable that their decomposition would have yielded saline products rich in potash salts. The theory which assumes that such salts may have been deposited in massive crystalline form during possible periods of desiccation in the history of the Quaternary or antecedent lakes is substantially the same as that upon which the project at Fallon is based. It is probably not fair at the present time to venture a comparison of the relative merits of these two sites.

The alunite veins found near Marysvale, Utah, offer much promise for successful development, and may furnish a commercial source of both potash and alumina. This deposit is to be described more at length in another report.

A source of available potash in this country has long been desired by those who have been in a position to realize the need of it and the disadvantages entailed by dependence on a foreign supply. Experimental exploration under Government auspices is not wholly without precedent. It is said that in 1857 a shaft which the German Government had been sinking for about five years near Stassfurt reached a depth of approximately 1100 feet, where

immense bodies of rock salt were discovered. Potash and magnesia salts were also discovered in association with these beds, and from this discovery the world's supply of potash has been developed.

An impression seems to have gained some credence that the United States Government is seeking to obtain the monopoly of a new form of deposit that is likely to be discovered. This impression should be corrected. The attitude of the Geological Survey in the endeavor that is being made is wholly disinterested. The Survey desires to aid in any legitimate way the development of potash in this country as a national resource, whether under public or private control. No provision exists in the present law which permits the withdrawal or reservation of lands from the appropriate forms of mineral entry for the sake of potash, or, in fact, for any minerals other than coal, oil, gas or phosphate.

The drilling site near Fallon happens to be withdrawn from all forms of entry, including mineral, under special provisions of the reclamation act. This condition is accidental, and applies only to the Fallon site, so that if the drilling is to be continued in a new field the site will probably be on public land, and unless otherwise provided by some new act of Congress, will be subject to entry in private mineral claims.

One significant aspect of the potash situation should not be overlooked by those who are estimating on the chances of success for any of the enterprises that might lead to the establishment of a home source of production. Foreign potash now commands a price much in excess of the foreign cost of production, including all exporting and transportation charges. This wide margin of profit will make possible extensive reduction of the present prices; indeed, it is reported that such a reduction has been openly threatened in case any serious competitor should enter the field. The consumer would naturally welcome any permanent cut in prices, but a rate war is likely to prove disastrous to any new or uncertain enterprise. The alternative presented, in case the competitor should develop unusual strength in resources, would be consolidation, and the consumer would thereupon be in the same position as before.

This situation is a severe handicap to the opportunities of success of the small operator. In the same sense it adds justification to the undertaking of exploration as a Government enterprise. Further than this, it suggests the advisability of providing against monopolistic combinations, possibly through the establishment of a leasehold system for the development of the deposits which may be found on public lands.

There is a good possibility that deposits of the Stassfurt type exist in the United States. Probably the only feasible method of exploring for such deposits is by drilling. The work at Fallon is now fairly started, but is no more than a beginning on the project as a whole. It is well that the work should proceed cautiously at the start, as little is to be gained by hasty or ill-considered expenditure. Experience gained in the preliminary tests now under way should help to make each succeeding test more effectual. It is to be hoped that the project already undertaken will be carried to a satisfactory conclusion, and if this is to be accomplished the work will have to be continued beyond the limits of the present appropriation. As has been stated, the German discovery was made only after five years' work in a single shaft, and it would be hardly reasonable to expect immediate results in this country.

## AUGUSTA BEAUTIFYING ITSELF.

### Plaza Designed to Give Pleasant First Impression to Visitors.

[Special Cor. Manufacturers Record.]

Chamber of Commerce,

Augusta, Ga., December 14.

Augusta has gone in for the "City Beautiful." The Barrett Plaza, now under construction, is expected to give train arrivals a pleasant first impression of this city, which is already considered one of the best laid out in the South. The entire block, bounded by 8th and 9th streets and Walker and Telfair, will be arranged according to the plan prepared by the landscape architect. Ornamental shade trees will go around the block except on the western side, which is occupied by one-story stores. Cluster electric lights on ornamental poles will be placed at intervals, and greensward flowers will, in season, make the place attractive.

While the whole block will be made ornamental, the Plaza proper will occupy the center space. 92½x400 feet, its center being occupied by an ornamental fountain and the northern end by a life-size bronze statue of the late Senator Patrick Walsh, the monument being erected by the Walsh Memorial Association, which has already accepted tentative designs.

The property is owned jointly by the United States Government and the city, the latter being under contract to maintain the ornamental effect. A \$250,000 postoffice will occupy the eastern lot, while on the city property a \$75,000 Carnegie Library will be constructed in the near future.

The plans, which have been approved by the supervising architect of the United States Treasury Department, were prepared by Architect G. Lloyd Preacher, and the landscape department of the P. J. Berckman's Company. The project calls for the expenditure of \$15,000 first cost by the city.

R. ROY GOODWIN,  
Managing Director.

## To Advance Little Rock.

[Special Cor. Manufacturers Record.]

Little Rock, Ark., December 15.

The Chamber of Commerce has begun a campaign to raise money for inducing factories to locate in the city. One of the outcroppings of the movement is a weekly luncheon at the Hotel Marion, where members of the Chamber and interested citizens may receive the latest news. At the meeting yesterday about 100 men gathered in the banquet-room of the hotel. Frank B. Gregg, president of the Chamber, presided. C. L. Baer reviewed the situation in vigorous, forceful style. John N. Heiskell, editor of the *Arkansas Gazette*, gave emphasis to the necessity of manufacturers to ensure continuing growth in any community. Arthur P. Cutter, immigration agent of the Rock Island Railroad, spoke on behalf of railroad interest, and Max Heimann spoke on behalf of local interests.

A. C. BOUGHTON.

## For a Packing Plant at Joplin.

Mr. O. M. Campbell, writing to the *MANUFACTURERS RECORD* from Joplin, Mo., regarding plans for a packing plant there, says:

"I am not going to build this plant, but friends ask me to come here and organize the concern, which I am doing, and the only thing that is holding us up at the present time is the site and railroad connections. However, that is practically adjusted, and I hope to be able to report in 10 days or two weeks the location completed, officers elected and the arrangements perfected.

"Joplin is an excellent place, and at this

time is making an effort to secure factories.

"There is a fine steel bridge building here, which the citizens are very anxious to get into operation, and I believe would offer special inducements to a new company to take hold of it."

## Electrical Articles.

M. H. B. Overvoorde and A. Van Der Tak, 56 Rue Du Stade, Athens, Greece, write to the *MANUFACTURERS RECORD*:

"We represent houses in all kinds of electrical articles. Until now seven-eighths of these have been bought in Germany. American prices are certainly good, but Germany gives its prices c. i. f. Piræus, Patras, Salonica, Smyrna and Constantinople, with conditions four to six months, acceptance against bills of lading through a bank. So you can see that only the terms are the cause that Germany takes everything. With any order we send a bank information (we are only selling to solid firms), so that danger of loss is excluded. We hope you will be able to explain this to your houses and to bring us in connection with your firms, in order to obtain a large turn-over for American goods."

## Camphor Trees in Florida.

The Federal Government has conducted for four or five years experiments in growing the camphor tree near Lake City, Fla., and it is reported that the experts are satisfied that the tree will thrive on the sandy soil of West Florida and will bring profitable returns in gum camphor. Several thousand of the trees have been planted recently at the East Bay Forest Nursery.

## Industries Wanted.

Bay Minette, Ala., December 12.

*Editor Manufacturers Record:*

We want in this town a canning factory to can sweet potatoes, tomatoes, figs, beans and vegetables of all kinds; a syrup refinery; coal and lumber yard; box, crate factory, etc. We also need more truck gardeners and farmers.

W. B. VANDIVER.

## Dillwyn's New Plants.

Dillwyn, Va., December 13.

*Editor Manufacturers Record:*

Dillwyn will soon have a national bank. R. A. Gilliam is now arranging the plans. Among the town's new establishments are a cannery, a creamery, an excelsior plant and a planing mill.

The Economics of Contracting. By Daniel J. Hauer, construction economist. Published by E. H. Baumgartner, Monadnock Block, Chicago. 269 pages. Clothbound.

This is a treatise for contractors, engineers, superintendents and foremen engaged in engineering contracting work, written by an engineer who entered the contracting field more than 20 years ago, when most things pertaining to contracting had to be learned by experience alone. It has been written with the idea that the profession of engineering contracting is the result of the study of its principles and history, using experience as a basis. It marks an endeavor to organize and systematize the practical principles underlying contracting and to put them into concise form for practical use. Practically every correlated branch of the subject is treated, so that the reader will have both a thorough understanding of the subject and suggested remedies to make contracting a success instead of a failure. The ten chapters treat of contracting as a profession; forms of contract; proposals, bonds, arbitration and other features of contracts; the business



end of contracting; clerical end of contracting; contractors' workmen; construction camps; management of contracts; contractors' outfit and plant, and a personal chapter for the contractor. It is replete with incidents and actual favorable and unfavorable experiences in contract work, which add interest as well as value to the more professional points treated. A number of diagrams with photographic views illustrating parts of the text are given.

### PAYING BY SAVING.

#### Economies in the Manufacture of Wood Pulp Board and Paper.

Chas. F. McLean, secretary Southern Wood Distillates & Fiber Co., Chicago, writing to the MANUFACTURERS RECORD regarding its plant in Louisiana, says:

"Our company has a total capitalization of \$750,000, which will finish remaining installation of our plant, the buildings of which are practically completed and most of the heavy machinery already installed. Our initial daily output capacity is 50 tons of wood pulp board, but we have ultimate power capacity of 3000 horsepower, which will allow expansion (without stopping operation) merely by addition of 'board' and wrapping-paper machinery.

"We shall probably employ about 125 men, most of the operation being accomplished by machinery practically automatic. The buildings are of steel, brick and concrete construction, mostly, and with ample fire protection, both through air space intervals and sprinkler systems.

"Through our use of forest refuse and sawmill waste from the immense plant of the Great Southern Lumber Co. we are enabled through our process, which also extracts turpentine and by-products from the wood, to manufacture finished fiber board and wrapping paper without the usual expenses for raw material, fuel and chemical treatment. We expect to begin operations shortly."

### Maine Spuds for Texas.

More than a million bushels of Irish potatoes for seed will be shipped from Maine and Colorado to Texas during December and January. This is the statement of A. G. Davis of Portland, according to the San Antonio *Express*, which quotes him as follows:

"Maine has raised a tremendous crop the past year, and the State expects to sell more than a million bushels to Texas from now until planting time. The indications are that Texas will plant the biggest crop in its history. The Maine farmer makes a specialty of growing the finest varieties for seed, which accounts to some extent for the good returns in this State where the Northern spuds are planted. The shipment of seed potatoes are brought to the piers in New York in cars heated by stoves, and it is necessary to select favorable conditions for reloading them on boats for Galveston, as the seed potato is something like a hothouse plant under those circumstances, and is easily chilled or frozen. Then it is no longer suitable for planting."

Thousands of dollars are received annually by the potato growers of South Texas for their crop.

The Manufacturers' Association of Jacksonville, Fla., has elected as members of the governing board for the ensuing year Messrs. L. T. Cheek, Ellis Crenshaw, C. B. Gay, H. B. Hoyt, Norman Merry, E. O. Painter, J. H. Gay, George W. Gibbs, Jr., and S. J. Smith. The officers of the association are J. H. Gay, president; H. B. Hoyt, vice-president, and Ellis Crenshaw, secretary and treasurer.

## GOOD ROADS

### WEEK'S HIGHWAY RECORD.

#### Progress in Southern Road and Street Improvement.

[Full details of highway undertakings are given in the Construction Department.]

#### Bonds Voted.

Bainbridge, Ga.—City voted \$25,000 bond issue for street improvements.

Clinton, N. C.—Sampson county voted \$50,000 bond issue for road construction.

Fort Mill, S. C.—City voted \$4000 bond issue for paving Main street.

Fort Worth, Tex.—Tarrant county voted \$1,000,000 bond issue for road construction.

Gallatin, Tenn.—Sumner county voted \$200,000 bond issue for road construction.

Meridian, Tex.—Bosque County Road District No. 7 voted \$40,000 bond issue for road construction.

Sherman, Tex.—Grayson county voted \$400,000 bond issue for road construction.

#### Bonds to Be Voted.

Bryan, Tex.—Brazos county will vote February 8 on \$200,000 bond issue for road and bridge construction.

Fayetteville, N. C.—Cumberland county will vote on \$200,000 bonds issue for road construction.

Jasper, Ala.—Walker county will vote March 12 on \$300,000 bond issue for road construction.

Rusk, Tex.—Cherokee county will vote January 6 on \$50,000 road bond issue.

Sanford, N. C.—Lee county will vote January 16 on \$100,000 bond issue for road construction.

#### Contracts Awarded.

Birmingham, Ala.—City awarded contract at \$2000 for macadam paving.

Birmingham, Ala.—City awarded contract at \$15,172 to pave Eighth avenue.

Dallas, Tex.—City awarded contract at \$4475.91 to pave Jackson street.

Jacksonville, Fla.—Duval county awarded contract to pave Atlantic Boulevard.

Joplin, Mo.—City awarded contract for paving 3d and Main streets with asphaltic concrete.

Little Rock, Ark.—City awarded contract at \$81,000 for asphalt paving.

#### Contracts to Be Awarded.

Baltimore, Md.—Paving Commission ordered paving of seven additional streets.

Brownsville, Tenn.—City receives bids until December 27 for grading and graveling streets.

Conecuh County, Ala.—Alger-Sullivan Lumber Co. will construct 60-mile road.

Crowley, La.—City receives bids until December 22 for constructing 33,000 square yards concrete crossings.

De Funiak Springs, Fla.—Walton county receives bids until January 15 to construct 60 miles of sand and clay road.

Hillsboro, Tex.—City will pave public square.

Johnson City, Tenn.—City receives bids until February 1 for 5900 square yards of paving, with bridges, sewers, etc.

Lexington, Ky.—City receives bids until December 23 for construction of S. Lime-stone street and Water street with vitrified brick, asphalt and creosoted wooden blocks.

Mobile, Ala.—City receives bids until January 5 for constructing 3480 square yards asphalt paving and 2408 linear feet granite curbing; also 33,700 square yards wood block paving and 17,530 linear feet granite curbing.

St. Petersburg, Fla.—City will pave about one-half mile of streets.

Texarkana, Ark.—Tex. — Improvement

District No. 14 will pave State Line avenue, Pine, Vine, Elm and Walnut streets; estimated cost \$55,000.

Tomkinsville, Ky.—Monroe county receives bids until December 29 for constructing four miles of road.

### SUMTER'S GOOD HIGHWAYS.

#### Sand and Clay Construction in the Georgia County.

[Special Cor. Manufacturers Record.]

Americus, Ga., December 13.

Sumter county, of which Americus is the county-seat, is noted for its good roads, having at present approximately 200 miles, the most of which radiate as highways from the county-seat. One of the most interesting talkers, as well as most enthusiastic, on the subject is Mr. Frank Sheffield, chairman of the county commissioners, and who is also a prominent banker of Americus, took charge of the actual construction about three years ago, when he was elected to his present position.

Different from most county movements for better roads, Mr. Sheffield states, Sumter has built all its roads without issuing bonds for the purpose. In Georgia each county fixes the amount of road tax accesses, and so in Sumter county the road tax was fixed at \$3 per voter a year, or 10 days' work on the road. This tax is so low that most all the voters pay the amount rather than lose 10 days from their daily duties. The result is that quite a large sum of money is accumulated in this manner during the year. With this money and part taken from the appropriation out of the direct tax, the county spends, and has been for the past three years, about \$50,000 on construction and the repair of good roads.

All the roads in Sumter have been constructed of sand and clay, and, although there has been a great deal of grading done and small bridges replaced by steel ones, the average cost per mile for construction and repair has not been over \$800. This work is done entirely by convict labor in charge of a competent superintendent. There are about 800 miles in the county that have not received attention as yet, but Mr. Sheffield states that, according to the present plan, the above stated amount will be spent annually until the county is fully equipped with the best roads.

"Sumter county," said Mr. Sheffield, "has been benefited wonderfully by the good-roads movement, and although we do not have the sand-clay roads in front of every man's door in the county, there is not a taxpayer that does not get value received for every cent he pays. Leaving out the saving the good roads have made in the transportation of farm products, they have had a wonderful effect in enhancing the value of lands. Such roads make better farmers, and with better farmers utilizing the best farm lands Sumter county is bound to wax rich and greater."

ROY G. BOOKER.

### For 60 Miles of Roads.

That the people of Walton county, Florida, intend to have modern roads is seen in the announcement that the county's commissioners will receive bids until January 15 for constructing 60 miles of public highways. Sand and clay construction has been adopted, and plans and specifications are on file. All inquiries should be addressed to Charles H. Gordon, clerk to county commissioners, De Funiak Springs, Fla.,

It is reported that the Wilson (N. C.) Cotton Mills will install new machinery. The company is now operating 6280 ring spindles.

## RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

### GEORGIA RAILWAY & POWER.

#### Commission Cuts Proposed Stock Issue—May Prevent Fulfillment of Plans.

The Georgia Railway & Power Co. of Atlanta, which proposes to make extensive consolidation of street railway and power concerns, described in the MANUFACTURERS RECORD on September 21 and 28, has been authorized by the Georgia Railroad Commission to issue \$2,000,000 of cumulative preferred stock, \$15,000,000 of common stock and \$30,000,000 of 5 per cent. 65-year bonds dated January 1, 1912, but is not authorized to issue \$10,000,000 of non-cumulative preferred stock, for which application was also made.

A report from Atlanta announcing the foregoing says that the company can now proceed to perfect its consolidation plans for the hydro-electric plants in the northern part of Georgia, and which include the Tallulah Falls, Bull Sluice and Gainesville properties; also the lease of the Georgia Railway & Electric Co., which conducts the street railway and lighting business in Atlanta and its suburbs, besides making several extensions of the street railway, one of which will be a line from Stone Mountain to College Point, according to previous announcements.

Nevertheless, there seems to be considerable doubt in Atlanta as to whether the company will attempt to carry out its plans without the issue of the whole amount of stock desired. It is intimated that an appeal to the courts may be made. A dispatch from there quotes Mr. Spalding of King & Spalding, counsel for the company, as saying that no immediate action will be taken. The corporation includes J. M. McWhinney, Charles Magee, R. Mathison and George A. Kingston of Toronto, Canada; Forrest Adair, Jack J. Spalding, Alex. C. King, Hughes Spalding, George W. Adair and E. Marvin Underwood of Atlanta, Ga.

The scope of the enterprise is wide. It proposes to furnish electric light and power to all the larger cities in the Piedmont section of Georgia, including Rome, Dalton, Cartersville, Elberton, Hartwell and other places. There will be 300 miles of steel transmission power lines on steel towers. In addition to the water-power for making electricity, the company will have auxiliary steam plants to be operated if low water should render the hydro-electric plants temporarily ineffective.

### GOLDSBORO TO THE COAST.

#### New Railroad Enterprise Expected to Cause Great Development.

The Goldsboro, Seven Springs & Swansboro Railroad Co. is just chartered in North Carolina to build a line about 70 miles long from Goldsboro to Swansboro, the latter being near the seacoast in Onslow county. This will include, it is said, 10 miles of railroad now operating out of Swansboro. M. H. Allen of Goldsboro, who is one of the incorporators, is reported saying it is expected to have the line completed before the end of next year, and that Northern capital is interested.

It seems to be the purpose of the incorporators to develop Swansboro, which is less than two miles from the Atlantic Ocean and on Bogue Inlet, making it a resort both winter and summer. The climate is said to be very equable, the earliest frost known being in the last of November, and then very light. Truck raised in that locality is unusually early for the latitude, and considerable farming devel-

opment is expected to follow the building of the railroad. There is a large industry in fish and oysters at Swansboro, and this business may furnish a great deal of traffic to the line. Extensive lumber operations, it is also believed will come about, as there are fine timber sections on the route, which will be from Goldsboro via Seven Springs, Pink Hill, Richlands and Jacksonville, N. C.

The T. H. Pritchard Transportation Co. of Swansboro is the principal stockholder, others being T. H. Pritchard of the same place, Frank Thompson of Jacksonville, M. H. Allen, John D. Longston, R. C. Griffin, Wm. A. Robertson and N. P. Young, all of Goldsboro.

#### LINE AND GRADE CHANGES.

##### Kansas City Southern Made Important Improvements—Work Still Going On.

The Kansas City Southern Railroad during the present year has accomplished some important betterments in the way of changes of line to reduce grades and also revision of grade on the present alignment. The changes of line included the following: Between Bunch and Hodgens, Okla., eight stretches, making a total of 17.61 miles; from Bear Creek Junction to Neal Springs, Ark., 8.54 miles; from Pickering to Neame, La., 3.30 miles; total new track on new alignment, 29.45 miles. In addition to this, grades were reduced on 15.3 miles between Lyons, Okla., and Neame, La., this being in five stretches.

Next year the following will be accomplished: Between Grandview and Neosho, Mo., 27 miles of changes of line, this being in seven stretches; also changes of grade on present line between Grandview, Mo., and Rose Pine, La., making a total of 47.4 miles, this being in 22 stretches.

Porter Bros. of Spokane, Wash., have the contracts, the work being under the direction of C. E. Johnston, chief engineer of the railroad company at Kansas City.

The work this year resulted in the addition of 8.32 miles to the main line mileage, there being removed 21.13 miles of old line and there being added 29.45 miles of new line in the way of change of route to obtain better grades. Some of the changes in route were very short (less than a mile), and the longest was that between Bear Creek Junction and Neal Springs.

#### SPENT ABOUT A MILLION.

##### Oklahoma Railway Made Many Improvements and Built Extensions.

The Oklahoma Railway Co., according to a report from Oklahoma City, has spent \$1,000,000 this year for construction, including the completion of the line to El Reno. Approximately three-quarters of a million dollars were spent at Oklahoma City and in its immediate vicinity. This work included the extension from College Park to Edmond, 4½ miles; the connection between the Industrial Addition and Capitol Hill, and the rebuilding of considerable trackage with 100-pound rails laid on concrete, with steel ties. Some double-tracking was also done, the power-house at Belle Isle was enlarged, new car barns were built, a new substation, new repair shops and carpenter shops were erected, in addition to other local betterments.

The completion of the El Reno line, which required the building of 12½ miles of extension from Yukon to accomplish, was a rapid piece of work that cost not far short of \$300,000, the figures stated being \$285,000. Construction on this began September 1 and was finished in just three months. Cars began running regularly over the new track on December 3.

A. H. Classen is president, and J. W.

Shartel, vice-president and general manager of the company.

#### FRISCO AT JOPLIN.

##### New Terminal, Office Building and Freight Station to Be Erected.

The St. Louis & San Francisco Railroad Co. has at last decided to build its projected million-dollar terminal at Joplin, Mo., according to reports from there, which quote W. T. Tyler of Springfield, Mo., general manager of the system, as saying that construction will begin within 10 days.

It appears that the city and the railroad company have finally attained an agreement which will result in executing the extensive plans for the new yards and station. The latter will include an eight-story office building for the company forces. It will be situated at 6th and Main streets. There will also be two freight depots at 10th street. Isaac Cook of St. Louis has the contract for the passenger station and office building. It is expected to be finished in a year.

#### New Equipment, Rails, Etc.

The Western Maryland is preparing specifications for 15 consolidation locomotives, 10 Pacific type passenger locomotives, 2500 freight cars of various types and 35 passenger train cars, including baggage, express and mail cars.

The Atlanta & West Point Railway is reported to have ordered 125 cars, which will be built at the Western of Alabama shops, Montgomery, Ala. The order includes steel underframe flat, gondola, box and automobile cars.

The Southern Railway will buy 27,100 tons of rails.

The Chesapeake & Ohio Railway is reported getting prices on 200 freight cars. The New Orleans Great Northern Railroad, it is reported, will buy two new locomotives.

The Durham & South Carolina Railway has ordered a 10-wheel locomotive from the Baldwin Works, Philadelphia.

The Gulf, Florida & Alabama Railway has prepared specifications for 4 locomotives and 200 cars, box, flat and passenger. Megargel & Co., 5 Nassau street, New York, are interested.

The Missouri, Oklahoma & Gulf Railroad has ordered two consolidation locomotives from Baldwin's.

The Nashville & Gallatin Electric Interurban Railway, Nashville, Tenn., is receiving bids on passenger and express cars.

The Rock Island Lines are reported about to purchase 15 cabooses.

The Baltimore & Ohio is expected to order about 50,000 tons of rails for 1912 delivery.

The Kanawha, Glen Jean & Eastern Railway, it is reported, has ordered a Mikado locomotive from the Baldwin Works.

The Tuscaloosa Mineral Railway is reported to have ordered 500 tons of structural steel from the McClintic-Marshall Construction Co., Pittsburgh.

The American Lumber Co., Merryville, La., is reported to have ordered 50 standard-gauge logging cars from the Orange Iron Works, Orange, Tex.

The Chesapeake & Ohio Railway has ordered 2500 tons of bridge steel from the American Bridge Co., New York.

The Texas City Transportation Co. has bought two new locomotives from Baldwin's.

The Pennsylvania Railroad, says a market report, has ordered 2000 tons of bridge steel from the American Bridge Co.

The T. H. Symington Company is reported to have received orders for materials to equip cars building for the Missouri Pacific, Rock Island, Louisville &

Nashville, Norfolk & Western, Norfolk Southern, Baltimore & Ohio and Atlantic Coast Lines.

The Pennsylvania Railroad, according to reports in market circles, will purchase more than 20,000 cars, the Harriman Lines are expected to buy from 12,000 to 15,000 and the Santa Fe 8000.

The Illinois Central is reported getting prices on 10 postal cars, 7 baggage and mail, 9 smoking and baggage, 26 straight baggage, 4 cafe, 4 dining, 10 chair and 40 passenger cars, besides 30 cabooses.

The Texas & Pacific Railway will purchase 20 locomotives, 20 passenger cars, all steel, and 200 coal cars.

The International & Great Northern Railroad will buy five locomotives, 20 passenger cars and 100 ballast cars.

#### Gulf, Florida & Alabama.

W. W. Jennings of Towanda, Pa.; F. B. Erwin of Albany, N. Y., and T. A. Jennings of Pensacola, Fla., are reported elected directors in the Gulf, Florida & Alabama Railway Co., of which R. C. Megargel of New York is president. G. A. Berry, chief engineer, has also been appointed general manager in charge of operations, with office at Pensacola. The company, it is said, has decided to use telephones for train dispatching, and specifications have been prepared preparatory to purchasing four locomotives and 200 cars, the latter to include some for passenger service as well as freight.

G. A. Berry, vice-president and chief engineer, says concerning the proposed improvements at the Gulf:

"Our marine terminal at Pensacola contemplates the construction of a reinforced concrete bulkhead wall on the United States bulkhead line, from which will be constructed piers, four in number, each 100 feet by ultimately 1200 feet in length, which piers will consist of reinforced concrete walls back-filled with sand, forming permanent quays. The areas behind the bulkhead will also be pumped full of sand, thus creating a yard of about 60 acres in extent, on which will be located the distribution yard for the various piers, as well as lumber and naval stores yards. At least two of the piers will be shedded their entire length, ultimately, with fireproof material, for the storage of perishable freight, and one of the remaining piers will be constructed as a coaling dock for export and bunker shipments. The piers will extend to the United States pier head line, at which 30 feet of water obtains at low tide, and all slips between piers will be dredged to this depth.

"We expect to start construction of one pier and of a portion of the bulkhead wall shortly, in time to have the same ready for service by the time the first 80 miles of the road goes into operation, on or about the first of April, 1912."

#### Kansas City to St. Joseph.

Contracts have been awarded at Kansas City for over \$250,000 of electric construction work on the Kansas City, Clay County & St. Joseph Railway, according to a report from there, the Wyandotte Construction Co. placing them as follows:

Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa., substation and transformer apparatus and catenary line material.

General Electric Co., Schenectady, N. Y., motors, airbrakes and electric equipment for cars.

Western Electric Co., Chicago, cross-arms and line hardware.

Ohio Brass Co., Mansfield, O., porcelain insulators.

The Wyandotte Construction Co. also reports that 1350 men are now engaged in building the road with 37 machines, including crushers, steam shovels, grading

machines and traction locomotives, besides 1250 horses. Over 60 per cent. of the reinforced concrete arches have been built, and 30 per cent. of rails, ties and poles are delivered. There is also an engineering corps of 43 men in the field completing the surveys ahead of the actual construction.

#### Richmond-Fredericksburg Report.

The Richmond, Fredericksburg & Potomac Railroad Co. has issued its seventy-ninth annual report, which covers the fiscal year ended June 30 last. It shows total operating revenues \$2,386,615, increase as compared with last year \$55,067; operating expenses \$1,181,393, increase \$65,001; operating expenses, including taxes, \$1,499,115, increase \$79,194; net revenue from operation \$887,500, decrease \$24,127; gross income \$895,393, decrease \$20,055; net income after total deductions for interest, rentals, transfer to special contingent fund and expenditures and appropriations for maintenance, etc., \$506,182, increase \$65,911; balance to profit and loss after payment of dividends, \$181,138; total to credit of profit and loss, \$648,678.

The company completed the reballasting of its tracks with washed gravel, according to plans previously announced, this work covering 76 miles of line. The change has proved economical in maintenance, and the new ballast also eliminates dust. The James River branch has been rebuilt and the alignment and grade reduced. Two reinforced concrete road bridges were erected. The roadbed will be prepared for double-tracking from a point near James River bridge to Acca. The improvements at Fredericksburg on the main line were completed. These include interlocking plant and tower, new passenger and freight stations, waterstation and freight yard. Their total cost was \$108,868. The new freight station at Marshall and Harrison streets in Richmond is being built, and should be finished this year.

The report is signed by Wm. H. White, president.

#### New Railroads Planned.

Among the new railroad enterprises lately organized are the following:

Rupert & Northeastern Railroad Co., chartered in West Virginia to build a line from Rupert, in Greenbrier county, to Fenwick, in Nicholas county, about 25 miles; capital \$5000; incorporators, H. L. Higginson, Josiah F. Hill, Seth T. Gano, H. L. Shattuck and C. A. Ellis, all of Boston, Mass. The Gauley Coal Land Co., 50 State street, Boston, appears to be interested.

New Iberia, Lafayette & Northeastern Railroad Co., organized at New Iberia, La., with authorized capital of \$1,000,000 to build a line from New Iberia via St. Martinville, Lafayette and Church Point to Eunice, La., about 60 miles; headquarters at New Iberia. The directors are F. M. Welch, president; Homer Barousse of Church Point, first vice-president; J. W. Lyons, second vice-president, and E. L. Estorge, secretary and treasurer; J. P. Colombe of Lafayette, Dr. J. R. Olivier and A. J. Goula of St. Martinville and Jules Dreyfus of New Iberia.

#### Rockport & Port Aransas Railroad.

A. L. Matlock of San Antonio, Tex., representing the Rockport & Port Aransas Railroad Co., is reported to have filed application with the Texas land commissioner for the purchase of 2000 feet of water front on Harbor Island at Port Aransas, the depth of the tract being 4000 feet. The location of the land desired is north of the lighthouse and also of the property of the Aransas Pass Channel & Dock Co. The railroad commis-



sion will have to act upon the application. Application for right of way to the tract will be filed later. The railroad is to extend from Rockport to Port Aransas.

Mr. Matlock is reported saying that a large amount of English capital is interested in the railroad, and that extensive improvements will be made. It is proposed to spend \$125,000 within a year, this including piers, docks and tracks.

#### Will Now Build Interurban.

The Middle Georgia Interurban Railway Co., according to reports from Jackson, Ga., has acquired the Flovilla & Indian Springs Railway and will make it part of the line projected between Griffin, Jackson and Social Circle, construction of which has been resumed. The line from Jackson to Indian Spring will first be built. L. W. Robert of Atlanta is president of the company, W. F. Smith is general manager and Parham Smith secretary, both of Flovilla, Ga.

The owners of the Flovilla & Indian Springs Railway are mentioned as H. P. Elder, R. V. Smith, W. F. and Parham Smith of Flovilla and J. R. L. Smith of Macon, Ga. It is stated that the acquisition of the line removes all doubt as to the extensions proposed, to which there had been opposition on the part of some of the stockholders of the road acquired.

#### L. & N. Expected to Spend \$500,000.

Advices from Montgomery, Ala., say that the Louisville & Nashville Railroad Co. contemplates enlarging its yards there to three or four times their present dimensions. Plans are said to have been prepared. The idea is to have a hump yard so that trains may be rapidly and easily made up. The improvements will cost, it is estimated, about \$500,000, but they do not seem to have been definitely decided upon, although it is believed that they will be made within the next year or two.

#### Boat and Railroad Line.

J. T. Wade of Hershman, Ga., is reported to have formed the Merchants & Farmers' Navigation Co. to operate two steamers on the Savannah River, headquarters being at Savannah. Others interested as incorporators are R. L. Brannon and M. Currie of Augusta, Ga.; T. S. Heyward of Savannah, and John Mears of Mears, Ga. Captain Wade is also said to be building a short railroad to be operated from Burton's Ferry in connection with the boats.

#### Railroad Notes.

The Baltimore & Ohio Railroad has awarded contract to M. P. Wells of Philadelphia to erect coal tipples, sandhouse, asphalt, storeroom and oilhouse at Cumbo, near Martinsburg, W. Va., the total cost of the improvements to be about \$90,000.

The Greenville & Knoxville Railway has completed its new station for freight and passengers at Greenville, S. C., as well as the tracks leading thereto. It is further reported that construction is proceeding satisfactorily upon the extension at Riverview, and several contracts were recently let for bridges across the Saluda River. Construction upon them has begun.

#### \$500,000 Plant Nearing Completion.

The \$500,000 plant of the Southern Wood Distillates & Fiber Co. at Bogalusa, La., is expected to be completed and in operation in February. It will consume 100 cords of refuse daily and have a daily output of 50 tons of pure wood fiber board, turpentine and other by-products. This plant is being built in the form of a hollow square, with power plant in the center. Its power equipment will be sufficient for three times the initial output mentioned.

## TEXTILES

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the MANUFACTURERS RECORD. We shall be glad to have such matters at all times, and also to have any general discussion relating to

#### Will Build \$400,000 Mill.

Referring to plans for a big cotton factory at Post City, H. G. Gilmore of Battle Creek wires the MANUFACTURERS RECORD, in part, as follows:

"C. W. Post of this city is to make his advent into the textile industry by establishing a cotton mill at Post City, in West Texas, founded by Mr. Post. The mill will be commenced this winter, and will be in operation in time to handle 1912 cotton. It will be a 10,000-spindle mill, and the initial cost will be about \$400,000. Two hundred looms will be used at the beginning, and the main building will be 500x125 feet in dimensions, built in such a way as to permit wide additions of machinery in case the project merits the extension. The product will be eight, nine and ten quarter sheetings, cut, hemmed, bleached and laundered, ready to be spread upon the bed. The annual production will be in the neighborhood of 2,000,000 yards, and it will be the first mill in the world to combine all processes of textile manufacture, from fresh picked unginced cotton to finished sheetings. Cotton raised on Mr. Post's 200,000-acre ranch outlying Post City will be consumed in the mill, which will also afford a market for an additional wide area of rich land producing very strong staple cotton. H. W. Fairbanks, Post City, will be general manager of the mill, and will have supervision of its construction as well as its operation."

#### Wylie Mills Enlargement.

The Wylie Mills of Chester, S. C., has about completed its 150x320-foot weave shed in course of construction since August. In this building the company will install 640 32-inch looms, with dobies attached, thus enabling it to weave the yarns from its present equipment of 20, 160 ring spindles, 8112 twister spindles, etc. The Draper Company of Hopedale, Mass., will furnish the looms. J. E. Sirrine of Greenville, S. C., is the engineer, and T. C. Thompson & Bro. of Birmingham and Charlotte are the building contractors for the enlargement.

#### A \$500,000 Fine Goods Mill.

A company will be organized with \$500,000 capital stock to build at Charlotte a 250,000-spindles and 500-loom mill for manufacturing fine fancy goods. New England investors will be largely interested, and the following officers have been chosen: President, A. B. Lincoln of Fall River; secretary, treasurer and architect-engineer, O. A. Robbins of Charlotte; superintendent, C. B. Skipper of Lancaster, S. C. Mr. Robbins advises the MANUFACTURERS RECORD he will soon send further particulars.

#### The Cotton Movement.

In his report for December 15 Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during 106 days of the present season was 5,356,086 bales, an increase over the same period last year of 1,052,488 bales. The exports were 4,409,987 bales, an increase of 631,426 bales. The takings were, by

Northern spinners, 948,841 bales, a decrease of 141,776 bales; by Southern spinners, 892,955 bales, an increase of 54,901 bales.

#### Adding 2000 Spindles.

The Tallapoosa (Ga.) Mills will add 2000 spindles, not 2500 as stated last week. This company originally installed 10,000 spindles, but built for 12,000 spindles, with engine and other equipment for this number. A. H. Washburn of Charlotte received the contract for the new machinery, and the latter is now being installed. The mill has been operating day and night with about 250 operatives on the production of chain warps and skeins.

#### Monaghan Mills Improvement.

The Monaghan Mills of Greenville, S. C., has completed and is now using its one-story-and-basement 100x120 foot cloth-room recently under construction. This company has also added 80 wide looms for weaving a special product.

#### Lauderdale Cotton Mills.

The Lauderdale Cotton Mills of Meridian, Miss., has been incorporated to succeed the Meridian Cotton Mills. This new company is capitalized at \$130,000, and its incorporators were I. Marks, H. M. Threefoot, E. S. Bostwick, E. Cahn and others.

#### Textile Notes.

The Marion (N. C.) Manufacturing Co. will increase its capital stock by \$300,000 to pay for new buildings and machinery recently announced as contracted for.

The Majestic Manufacturing Co. of Belmont, N. C., is installing additional machinery that includes 10 cards, 4 combers, 1 slubber, 1 first intermediate, 2 second intermediates and 7 jack frames. All contracts have been awarded.

The Southern Bank of Dublin, Ga., has purchased the Georgia Cotton Mills of that city and acted as trustee for the bondholders. The price was \$85,000. It is proposed to reorganize the company and resume manufacturing. This plant has 8000 ring spindles, 100 broad looms, 160 narrow looms, etc., operated by steam power.

## LUMBER

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

#### Wood Alcohol and Acetate of Lime.

The development of the wood alcohol and acetate of lime business in Michigan is resulting in giving increased attention in that State to the production of charcoal pig-iron, a matter in which the South is much interested. A correspondent writing about this industry says:

"The depletion of the hardwood forests in the East has resulted in the State of Michigan being the largest producer of wood alcohol and acetate of lime, and, consequently, of charcoal pig-iron.

"The uses of wood alcohol and acetate of lime are increasing faster than the supply, owing to the fact that every year several of the older plants in the East go out of business on account of the depletion of their wood supply, which offsets to a certain extent the increased supply from other sections.

"A cord of hardwood, birch or maple, contains from 10 to 12 gallons of wood alcohol and from 200 to 220 pounds of acetate of lime. By the modern retort method there is secured from a cord of cordwood an average of between 10 and 12 gallons of wood alcohol and 175 to 200

pounds of acetate of lime, according to the condition of the wood at the time it is carbonized. By the term 'cordwood' is meant the refuse from a lumbering operation, consisting of trees with a diameter of 9 inches or less, which make them too small to be used for sawn lumber. Logs over 10 inches in diameter are more valuable in the form of sawn lumber than the products would be from carbonizing the wood.

"In addition to the wood alcohol and acetate of lime, there is secured from each cord of wood between 45 and 50 bushels of charcoal. The plants in the East have been able to find a market for this charcoal as charcoal, but in Michigan there is no such market. Owing to the near proximity of the Mesaba and Gogebic ranges, however, the plants in Michigan and Northern Wisconsin are enabled to utilize their charcoal in the manufacture of charcoal pig-iron.

"Allowing for a handsome profit in the by-products of wood alcohol and acetate of lime, the charcoal produced is charged against the blast furnace at a fixed price, which enables the blast furnace to produce charcoal pig-iron at nearly the same cost at the furnace as the cost of coke pig-iron at the Valley furnaces. The tensile strength, however, of charcoal pig-iron is such that this iron ordinarily commands a premium in the market of \$1 to \$1.50 per ton over coke pig-iron, and in periods of depression in the pig-iron market charcoal pig-iron at the same price would generally be taken in preference to coke pig-iron. The retort plants, then, in Michigan, have at all times the advantage of a steady and increasing profit in their products of wood alcohol and acetate of lime, and in times of good prices in the pig-iron market have a large income from their pig-iron. That is, these plants participate in all the good times of the pig-iron market, and are enabled during times of depression to still show profitable earnings from their wood alcohol and acetate of lime.

"Among the large plants in Michigan are the Cleveland Cliffs Company, operating at Marquette and Gladstone, and the Lake Superior Iron & Chemical Co., operating at Ashland, Newberry, Manistique and Elk Rapids. This latter company has just finished the reconstruction of its chemical plants at Newberry and Manistique into the most modern retorts. These companies in Michigan also secure a large revenue from the timber cut from their lands, and which they sell in the form of sawn lumber. The prices of lumber are constantly advancing, however, and it is the policy of these companies to secure cordwood wherever available, saving as long as possible their reserves of hardwood timber forests."

#### Constructing a \$150,000 Plant.

The MANUFACTURERS RECORD is advised that construction is progressing on the new Sumrall (Miss.) plant of the J. J. Newman Lumber Co., main office at Hattiesburg, Miss. This plant will cost about \$150,000, including a 12x70-foot sawmill and an 80x200-foot dock. Steel and concrete fireproof construction has been adopted, and all contracts have been awarded, the Milwaukee (Wis.) Bridge Co. having the steel contract and the Filer & Stowell Company of Milwaukee having the machinery contract. The plant will have a daily output of 300,000 feet of yellow pine lumber, and is expected to be completed by next May.

Chief Engineer Calvin W. Hendrick of the Baltimore Sewerage Commission was last week re-elected president of the National Association for preventing the pollution of rivers and waterways at the convention held in Baltimore.

## MINING

### PRODUCTION OF LIME IN 1910.

**Slight Decrease in Tonnage, but Increase in Value of Output.**

"The Production of Lime in 1910," by Ernest F. Burchard, has just been issued by the United States Geological Survey as an advance chapter from "Mineral Resources of the United States." The total production of lime in 1910, as reported to the Survey, was 3,481,780 short tons, valued at \$13,894,962, compared with 3,484,974 short tons, valued at \$13,846,072 in 1909. This represents a decrease in tonnage of 3194 tons and an increase in value of \$48,890. Owing partly to the inactivity of a number of small kilns operated by farmers to obtain lime for local use as a fertilizer, and partly to the abandonment of old and worn-out kilns, there was apparently a large decrease in the number of producers reporting to the Survey.

Few mineral products have so wide a variety of uses as lime. Nearly half the lime manufactured in the United States is used as a structural material, and the remainder, amounting to about 1,750,000 tons, valued at about \$5,500,000, is used for chemical purposes.

Lime is burned with a number of different fuels. Coal is used most extensively by plants in the United States at present, followed in order by wood, coke, producer gas, natural gas and oil. A large variety of mixtures is also employed, such as coal and coke, coal and wood, coke and wood, coke and shavings and shavings and manure.

It is probable, says Mr. Burchard, that if wood were universally abundant it would be more generally used than coal. Lime can generally be burned more slowly and at a lower temperature with wood than with other fuels. The lower the temperature at which lime is burned the better its quality will be.

On account of the rapid decrease in the wood supply, there is considerable interest in the possibility of utilizing producer gas for burning lime. It is reported that under the most unfavorable conditions one kiln at St. Louis made 3½ pounds of lime to 1 pound of coal, using producer gas, as compared with an average of 2.4 pounds of lime to 1 pound of the same coal for coal-burned lime. The same manufacturer reports making as high as 4½ pounds of lime at times, and others have had as good success.

A copy of this report may be had free on application to the Director of the Geological Survey at Washington, D. C.

### Petroleum in Texas.

Director William B. Phillips of the University of Texas bureau of economic geology and technology, Austin, writes:

"With the coming in of the Electra oil field, Wichita county, 150 miles northwest of Fort Worth, which has now a production of about 10,000 barrels a day, the oil situation in Texas has entered upon a new phase. With the exception of the Navarro county oil fields (Corsicana and Powell), practically all of the Texas oil has been obtained from the formations represented in the Coastal Plain, counties of Jefferson, Hardin, Liberty, Harris, Matagorda, etc., which are Upper Cretaceous and Tertiary. These are the formations which have yielded by far the greater quantity of oil produced in Texas, and they continue to supply the bulk of the oil secured here.

"In the Electra field, however, we have a different set of conditions. While the Cretaceous is represented, there are two, and perhaps three, other formations which

are to be considered, the Carboniferous and the Permian, with beds which may prove to be Permo-Carboniferous. The work in which Dr. J. A. Udden of this bureau has been engaged since the first of October will, it is hoped, clear up some of the obscurities surrounding the structural geology of that region. In this task he has had the benefit of a report prepared on the region west of Electra by Prof. C. H. Gordon, formerly of the United States Geological Survey, and now at the University of Tennessee. This report has not yet been published.

"In addition there have been collected more than 80 deep-well records from Wichita and Clay counties, which have not been placed at the disposal of any geologist until recently. The reports of the Texas Geological Survey, 1888-1892, and of the University Mineral Survey, 1901-1905, have also been drawn upon.

"Dr. Udden will be able to prepare a report on this region which will embody not only all that has been written with respect to it, but also and particularly the results of his own observations. It will be the first special report on that area.

"In this connection it is of interest to state the total production of petroleum in Texas since the earliest reliable statistics were gathered. We shall use the figures given by Dr. David T. Day of the United States Geological Survey. Since 1889, including 1910, the total production of petroleum in Texas has been 147,460,188 barrels of 42 gallons. Considering the total production of the different oil-producing States, Texas ranked sixth in the following order: Pennsylvania (and New York), Ohio, California, West Virginia, Oklahoma, Texas.

"The production in the United States since 1859 is given as 2,378,907,864 barrels.

"Texas reached its high-water mark in 1905, with 28,136,189 barrels. Since that time there has been a marked reduction of output, and in 1910 we produced 8,890,206 barrels. During the last five years the production has diminished by 19,236,963 barrels.

"In view of these facts, the bringing in of a new oil field of considerable promise is an event of unusual significance.

"It is an unhappy commentary on current affairs that there has been no State report on oil or gas since 1901, and that report has long been out of print. Since that time the production of oil has been 140,947,622 barrels, with a value of at least \$75,000,000. During this time the State has done nothing whatsoever to advance the study of the conditions under which oil and gas may be found, no maps have been issued, no statistics collected. The Texas Geological Survey was destroyed in 1892, after an existence of four years, and the same fate befell the University Mineral Survey in 1905, after four years.

"Oklahoma, which in point of natural resources has certainly no advantage over Texas, gives \$18,880 a year to its geological survey.

"Incidentally it may be remarked that during the last four years the production of oil in Oklahoma was 189,210,829 barrels, and in Texas 41,962,893 barrels.

"For the years 1907, 1908 and 1909 the total value of the mineral products of Oklahoma was \$82,503,857 and of Texas \$52,406,194.

"It might be as well for us here to do a little less talking and a little more work."

### For \$300,000 Power Plant.

A \$300,000 central power plant will be built at Hutchison, W. Va., for the Consolidation Coal Co. of Baltimore. It will be of concrete and brick construction, con-

tract having been awarded to the Bethlehem (Pa.) Steel Co. This contract includes three 1000-kilowatt gas engines.

### Some Kentucky Minerals.

[Special Cor. Manufacturers Record.]

Bowling Green, Ky., December 14.

In addition to the six quarries and two stone mills that have been opened and begun operations in this district within the last 10 months on the Bowling Green white (oolitic) stone, there has been opened within 90 days 20 feet of wonderful snow-white stone, a real marble, carrying 99.77 per cent. carbonate of lime and a crushing strength of 9200 pounds per cubic foot. These six new quarries are opened on Barren River, and are immediately accessible to two trunk lines of railway and the Mississippi River, with its 15,000 miles of navigable water, and in addition the Panama Canal can be reached without transfer. The Barren and Green River system is open to steamboats and barges daily the entire year, with exceedingly low rates to many roads and the low Ohio River railroad rates.

Positive steps are being actively taken looking to the rapid development of the immense beds, 20 to 40 feet thick, of Kentucky rock asphalt, the great surfacing material for macadam and other roads and streets. The proposed Bowling Green Northern Railroad, from the head of navigation on Barren River to the Illinois Central will pass immediately through this material for 30 miles, and this, with the great river system upon which it is immediately located, will furnish superior transportation rates and the very best accommodation. At present there is a standing rate of 60 cents per ton from the mine to both Louisville & Nashville and the Illinois Central, with a rate on either 50 per cent. less than if the mines were located solely on one or the other of them. This is for large loads of some 500 or more tons. Kentucky rock asphalt has stood the test of eight winters here on one of the most frequented streets. There has not been one cent spent for maintenance or repairs, and, save a few holes resulting from the personal equation of the laborers who were employed in its construction, the street is as perfect as when first laid.

M. H. CRUMP.

### To Develop Alabama Iron.

The Alabama Iron & Mining Co. of Birmingham, chartered last week with \$100,000 capital stock, has organized with J. A. Yates as president, and he sends the MANUFACTURERS RECORD an outline of the company's plans. Mr. Yates writes as follows:

"Temporary office of the company is 514 Chamber of Commerce Building, Birmingham. We have so far purchased outright 847 acres of ore lands and expect to acquire 1000 acres more immediately adjoining this property. The price paid for this land is about \$75 per acre. The daily capacity of our plant when completed will be 400 tons. Cost of equipment, including side track, will be something like \$25,000. The present address of the engineer in charge, E. J. Bird, is Birmingham office."

### Virginia Glass Sand.

For more than 25 miles along the Virginia & Southwestern Railway in Southwest Virginia is a deposit of exceptionally pure and hard white sandstone, which is being quarried near Mendota and crushed into a fine sand, which, according to the Southern Field, should be an excellent grade of material for glass and for sand-lime brick. The Field, which is the instructive organ of the land and industrial department of the Southern Railway, devotes considerable space in its December

issue to the minerals of Virginia, including granite, crushed stone, talc and soapstone, marls, mica and feldspar, barytes, manganese, copper, lime, clays, sand and gravel, sandstone, marble, rutile, coal, iron, lead, zinc, slate, pyrite, graphite, ochre, etc.

### Halosite for Aluminum Sulphate.

The North American Chemical Co. of Rome, Ga., has been chartered with \$500,000 capital stock and the following officers: President, H. H. Shackleton; vice-president, T. E. Grafton; secretary, J. E. Dean. This company has purchased 1000 acres of land containing halosite deposits, and is reported to have driven tunnels and walls blocking out many tons of the ore, which it is proposed to treat with sulphuric acid for producing aluminum sulphate, utilizing a process invented by P. H. Carter, a Rome chemist. The sulphate is commercially known as alum cake, and is used for manufacturing paper, for leather, for filtration, etc. It is proposed at first to build a reduction plant in the middle West and later at Rome.

### Pond Creek Coal Co.

The Pond Creek Coal Co. has effected permanent organization, as recently planned. Albert F. Holden of Salt Lake City has been elected president, and Thos. B. Davis, Jr., of No. 1 Broadway, New York, has been elected vice-president and general manager. The directors are Sumner Wallace of Rochester, N. Y.; Wm. H. Coolidge, Calvin Austin, Edward A. Clark, Lewis Kennedy Morse and Galen L. Stone of Boston. This company is capitalized at \$2,000,000, and will develop 30,000 acres of coal land in Pike county, Kentucky. It has finished surveys, and is preparing to begin the construction of tipples, railways, miners' houses, etc. Executive offices at 55 Congress street, Boston.

### Kentucky Fuel Co. to Merge Fourteen Companies.

Dispatches from Louisville state that the Kentucky Fuel Co. has effected temporary organization and will merge 14 coal-mining operations on the main line of the Illinois Central Railway, the properties being reported as valued at about \$5,000,000. W. G. Duncan of Greenville, Ky., is president, and W. A. Wyckliffe of Greenville, R. L. Brown of Memphis and T. Coleman du Pont of Wilmington, Del., are the vice-presidents.

### Chartered with \$1,800,000 Capital.

Chartered with a maximum capital of \$1,800,000 and a minimum of \$1,000,000, the Virginia Zinc & Chemical Corporation of Bristol has the following officers: President, John T. Williams of New York; vice-president, John T. Williams, Jr., of Bristol, Va.; secretary-treasurer, William Spencer of New York.

### Nacogdoches Young Men.

Mr. Ed. Rice, president of the Nacogdoches County Poultry Association, Nacogdoches, Tex., writes to the MANUFACTURERS RECORD that the young business men there are forming a Commercial Club in which 100 members have been enrolled. The object of this organization is to encourage the improvement of the town and county, to bring the rural community into closer relation with the town, to strengthen the appreciation by the people of their local advantages and to induce investments in industries by outside persons.

Chairman W. MacDonald Lee of the Virginia Fish Commission estimates that the fisheries of the State in 1911 had a value of \$7,500,000, of which \$3,000,000 represented oysters, \$1,250,000 menhaden and \$1,000,000 crabs and clams.



## MECHANICAL

### Ransome Controllable Dump Bucket for Placing Concrete in Thin Walls.

In the construction of concrete work, contractors some times find it difficult to place concrete in thin walls rapidly. In order to meet the demand for a dump bucket especially applicable to this work,

the end of which is a cam bearing on an equal arm lever that connects by another lever to the bottom. It is claimed that the concrete is easily controlled by the operator, who can let it out in small or large quantities. In cases where thin layers of concrete are desired, the operator can control the discharge and at the same time move the bucket forward or backward, thus spreading the concrete. The shape of the drop bottom is such that with

ing of time and eliminates the necessity of hammering in order to clean it. It has been successfully used by the J. B. Smith Company, contractors, in erecting the inclined concrete abutments for the overhead double-track crossing on the Western & Atlantic Railway at McCarty, Tenn.

### The Star Safety Water-Tube Boiler.

The Star safety water-tube boiler, manufactured by the Harrisburg Manufactur-

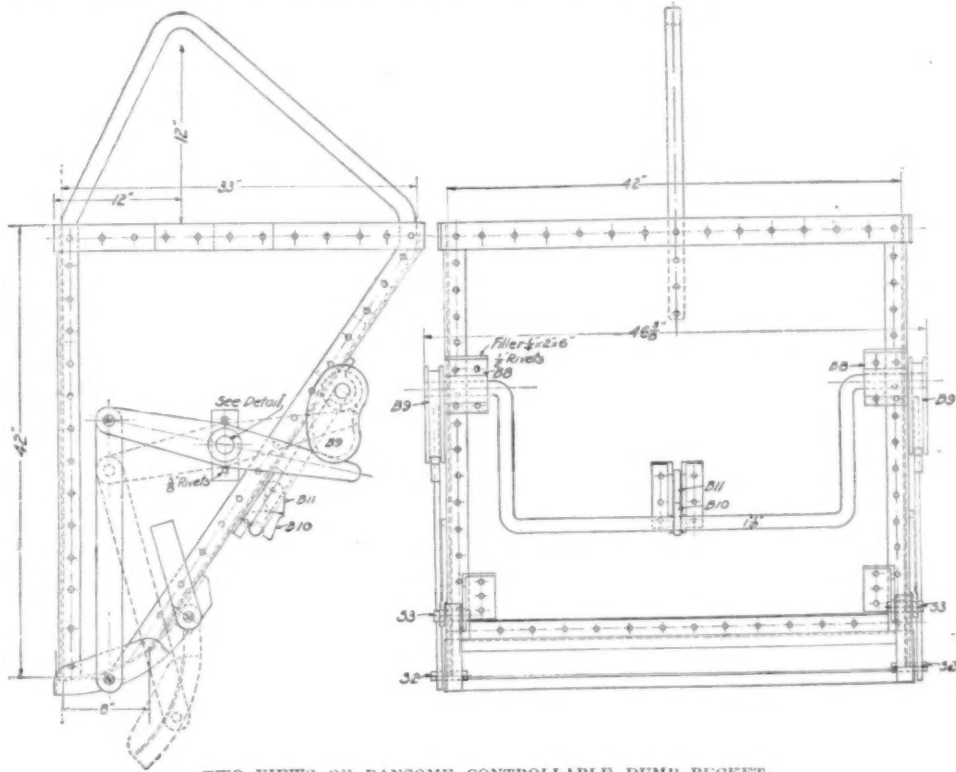
it. The Star boiler is also very economical in space occupied. Ten square feet of heating surface to the horse-power is provided. Since cutting down the heating surface is only done at the expense of economy, this liberal rating gives the boiler reserve capacity when there is a special demand for it without resorting to uneconomical driving. The tube caps and hand-hole plates are located on the inside of header, so that the steam pressure holds them in place, and even if a cap bolt should be broken, the cap remains undisturbed and no damage is done.

The sediment settles almost entirely in the water legs, from which it can be removed through suitably located hand-hole plates. When the tubes require cleaning, the tube caps are removed and the tubes cleaned by running a scraper through them. Star boilers are cleaned and inspected entirely from the outside. The ash which settles on the outside of the tubes is blown off by a steam blower which is furnished with the boiler. This can be used when the boiler is in service. Much time also is saved in the installation of the boiler, for when it arrives it has only to be set up and connected to be ready for operation.

These boilers are built entirely of steel, and each boiler is a complete unit, without joints, and hence it is claimed to be free from leaks. To meet the demand for boilers the shops have been largely increased and equipped with improved machinery, many of the machines having been especially designed for the production of this boiler.

### For Manufacturing Acid Phosphate.

The Phosphate Mining Co.'s vice-president, J. M. Lang of Savannah, sends the MANUFACTURERS RECORD further facts regarding his company's plant briefly outlined last week. Mr. Lang writes as follows: "The fertilizer factory which we have arranged to erect here will have a capacity of 50,000 tons of acid phosphate per annum, and the total cost, including site, acid plant, mill buildings, machinery, etc., will be between \$300,000 and \$350,000. The construction will be of the usual type, namely, brick or concrete foundation, brick furnace-room, brick fire walls, with frame buildings, fireproof roofing, and the usual fire equipment required by



TWO VIEWS OF RANSOME CONTROLLABLE DUMP BUCKET.

the Ransome Concrete Machinery Co., Dunnellen, N. J., has placed the Ransome controllable dump bucket on the market. This dump bucket, which has been patented, is shown in the accompanying illustrations. Its construction includes a drop bottom, which is slightly curved and is

a little experience the operator can place the concrete through a steel system four to six feet wide.

Although this bucket was primarily designed for thin wall construction, discharging concrete readily in narrow forms for walls as thin as three inches, it is useful

ing & Boiler Co., Harrisburg, Pa., is a self-contained, internally-fired water-tube boiler requiring no brick setting, containing an inner and outer shell forming a water jacket completely surrounding the fire. The water jacket receives and absorbs the radiated heat. The front and back water spaces and legs are connected by straight inclined water tubes, which can be drawn out forward when being renewed, so that no space need be allowed for this at the rear of the boiler. Below



THE RANSOME CONTROLLABLE DUMP BUCKET.

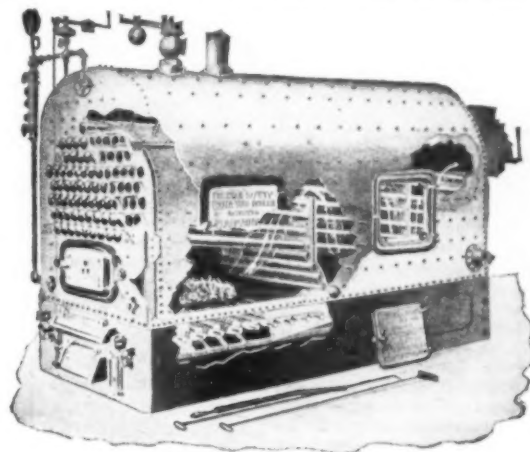
about one-fourth the length of the sloping side. The section of the bucket is a right angle triangle, the front or discharge side being vertical. By this arrangement there is no interference from the steel reinforcing rods or forms used in concrete work. The drop bottom is operated by a handle, on

in all kinds of concrete work, and the shape of the bucket is such that very little scraping is needed after the batch is let out. The vertical face gives a clear fall to the batch, so that a scouring is produced on the sloping side and the bucket is completely cleaned. This means a great sav-

the low-water line the volume of water is subdivided into many smaller bodies surrounded by and in contact with the hot surfaces. The heat absorbed in this part of the boiler is transferred to the upper storage space, which is exceptionally large, because of the large water surface.

The area of water surface affects the fluctuations in height of level, due to any change in the volume of water. Large water surface also permits the liberation of steam over a large area, so that it rises quietly and does not carry moisture with

the Southeastern Underwriters' Association. The contracts for furnaces and acid chambers and tower have already been placed, except as regards the woodwork of chamber building. Contract for mill building, storage shed and frame of acid chambers will probably be placed within the next week. Preliminary work has been started, such as grading the property, putting in railroad tracks and artesian well, and we hope to have all construction work under way within the next week or ten days."



STAR SAFETY WATER TUBE BOILER.

# Construction Department

## TO OUR READERS!

In order to follow up properly the Construction Department items, please bear in mind the following statements:

### EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "it is reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

### HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be shown on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the postoffice will be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur.

### WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year. On all advertising contracts in the Manufacturers Record for three months or longer a subscription to the Daily Bulletin is included for the contract period.

### BRIDGES, CULVERTS, VIADUCTS

D. C., Washington.—District Commissioners will expend \$6000 to repair Calvert Street bridge; improvements will include narrowing of present roadway, floor beams braced and new flooring laid; at present new floor only will be laid; day labor; Daniel E. Garges, Chief Clerk. (Recently noted.)

D. C., Washington.—Thomas C. Bailey, Jr., district engineer, 531 Randolph St. N. W., will be in charge of preparing plans for bridge to be constructed across Rock Creek at Q St.; concrete; built on curve; estimated cost \$275,000; expected to have plans completed about May 1; Glenn Brown, secretary American Institute of Architects, 1741 New York Ave. N. W., has been engaged in advisory capacity. (Previously mentioned.)

Ga., Dublin.—City voted \$300,000 bond issue for bridge and road construction. Address The Mayor.

La., Baton Rouge.—Police Jury awarded contract to S. Hasle, Jr., Dallas, Tex., to construct bridge over Comite River on Greenwell Springs Rd.; cost \$5200 for steel structure and \$5800 for concrete; State Board of Engineers will examine plans and determine upon character of construction.

Md., Baltimore.—City will receive bids until December 27 for construction of steel-plate girder bridge in South Monroe St. over Baltimore & Ohio Railroad tracks and removal of Warren truss bridge; H. K. McCay, City Engineer. (Recently mentioned. See "Machinery Wanted.")

Md., Baltimore.—Western Maryland Rail-

way, H. R. Pratt, chief engineer, contemplates bridge construction along its line.

Mo., Kansas City.—Board of Public Works adopted plans submitted by Louis R. Ash, City Engineer, for proposed bridge over McGee St. trafficway at 26th St.; 80-foot concrete span; roadway to be 18 feet, curbed; 6-foot wall on south side of roadway; to north of structure 26-foot roadway extending west from McGee St. trafficway to Grand Ave.; will meet grade of 26th St. at Oak St.; estimated cost, \$15,000.

Mo., Warrensburg.—Johnson county awarded contract to A. E. Shorthill Company, Marshalltown, Ia., at \$12,989 to construct 31 steel bridges, and Black Water Drainage District No. 1 awarded contract to same firm at \$11,900 to construct 12 steel bridges.

N. C., Salisbury.—Site selected for line bridge across South River between Rowan and Davis counties; structure about 450 feet long, 12 to 16 feet wide; cost about \$6000; plans will be drawn by C. W. Miller, Salisbury, for single and double driveway bridges, and bids will be asked on both; P. B. Beard, chairman Rowan County Commissioners; C. G. Bailey, chairman Davis County Commissioners; bids opened within 60 days. (See "Machinery Wanted.")

Okla., Oklahoma City.—Chicago, Rock Island & Pacific Railway, J. B. Berry, chief engineer, Chicago, Ill., will consider replacement of present wooden bridges across North Canadian River at Dale and Council by concrete structures with steel spans, costing about \$50,000; structures are included in recommendations for 1912 made by bridge and building department of El Reno-Oklahoma City-Shawnee division, amounting to about \$200,000.

Tex., Benbrook.—Tarrant county will construct steel bridge across Finley's Branch, on Fort Worth and Weatherford Rd., about 2½ miles from Benbrook; 30-foot span, 14 feet wide, rest on concrete head ends 12 feet high; bids received until December 23; C. J. McKenna, County Auditor. (See "Machinery Wanted.")

Tex., Bryan.—Brazos county will vote February 8 on \$200,000 bond issue for bridge and road construction. Address County Commissioners.

Tex., Fort Worth.—Tarrant county voted \$600,000 bond issue for construction of four bridges, including structure across Main St. connecting city proper and North Side, estimated to cost \$350,000; another over Trinity River at Riverside, and one at Samuels Ave., estimated to cost \$72,000; Hendrick & Cochran, consulting engineers, Kansas City, Mo., prepared plans. Address County Commissioners. (Recently mentioned.)

Va., Amherst.—P. St. J. Wilson, State Highway Commissioner, receives bids until January 1 to construct two steel bridges, one across Harris Creek and one over Pedlar River; plans and specifications on file with County Clerk. (See "Machinery Wanted.")

Va., Norfolk.—Special Bridge Committee recommended that Legislature be petitioned to authorize bond issue of \$450,000 to construct bridge across Eastern Branch between Norfolk and Berkley; issue is expected to include cost of bridge and of property required for approaches; W. T. Brooke, City Engineer.

Va., Lynchburg.—Board of Aldermen rejected proposition to issue \$100,000 bond issue for bridge across James River; Harry L. Shaner, City Engineer. (See "Road and Street Work.")

W. Va., Charleston.—City will expend \$2000 to construct wood trestle; G. S. Brown, Bradford Bldg., City Engineer; no machinery. (Recently noted to receive bids until December 18.)

### CANNING AND PACKING PLANTS

Ark., Little Rock.—Commercial Club is interested in establishing packing plant.

Ark., Pine Bluff.—Commercial Club is interested in establishing packing plant.

Miss., Greenwood.—Commercial Club is interested in establishing packing plant. Address Secretary Commercial Club.

Miss., Jackson.—Commercial Club is interested in establishing packing plant.

Mo., Joplin.—O. M. Campbell, care Commercial Club of Joplin, recently noted promoting organization of company to establish packing plant, states matter of site and railroad connections is practically adjusted, and further plans may be announced within few days.

Mo., St. Louis.—St. Louis Independent

Packing Co. will erect smokehouse adjoining plant at 3557 Chouteau Ave.; four stories; brick and concrete; cost about \$65,000.

Tex., Marshall.—Commercial Club is interested in establishing packing plant.

Tex., San Antonio.—Travis F. Jones and James A. Logwood contemplate establishing cannery and commission house. (See "Land Developments.")

Tex., Wichita Falls.—Commercial Club is interested in establishing packing plant.

### CLAYWORKING PLANTS

Ark., Piggott.—Tile and Brick—Rector Tile & Brick Co. (formerly of Rector, Ark.) changed name to Clay County Tile & Brick Co., and will establish plant at Piggott.

Tex., Palestine.—Brick—Joseph Myers, proprietor Crown Bottling Works, will establish brick and concrete plant.

Tex., Wichita Falls.—Brick and Tile.—Wichita Falls Brick & Tile Co. increased capital stock from \$175,000 to \$275,000.

### COAL MINES AND COKE OVENS

Ala., Birmingham.—Brookside-Pratt Mining Co. incorporated with \$10,000 capital stock to develop coal lands, mine ore, quarry limestone and manufacture pig-iron; will develop two coal mines, one at Cardiff and other at Brookside, Ala.; James Bonnyman is president, A. R. Long vice-president and P. J. Gariand secretary-treasurer; Bonnyman-Norman Coal & Iron Co., organized with Mr. Bonnyman as president, to be sales company for Brookside-Pratt Mining Co.

Ky., Caston (Postoffice Barbourville).—Harlan Coal Co., Board of Trade Bldg., Louisville, Ky., organized with K. W. Meguire, president; Frank F. Sneed, vice-president; C. Jungbluth, secretary; L. W. Farmer, manager; will install machinery during fall of 1912 for development of 10,000 acres of leased land; machinery will include engines, boilers, compressors and gasoline haulage; coal conveyors will be used instead of incline. (See "Machinery Wanted.")

Ky., Greenville.—Kentucky Fuel Co. organized to merge 14 coal-mining operations on Illinois Central Railroad; properties reported valued at \$5,000,000; president, W. G. Duncan of Greenville; vice-presidents, T. Coleman du Pont of Wilmington, Del.; R. L. Brown of Memphis, Tenn., and W. A. Wyckliffe of Greenville.

Ky., Harlan.—Harlan Town Coal Co., Knoxville, Tenn., will develop 1200 acres of coal land; daily capacity 500 tons of coal; J. K. Griffin, president; B. A. Morton, vice-president. (Recently reported incorporated.)

Ky., Pike County.—Pond Creek Coal Co. organized with Albert F. Holden of Salt Lake City, Utah, as president; Thomas B. Davis, Jr., 1 Broadway, New York, vice-president and general manager; will develop 30,000 acres coal land previously purchased; completed surveys and planning to begin construction of tipples, railways, houses, etc.; capital stock, \$2,000,000; executive offices at 55 Congress St., Boston, Mass. (Late-ly mentioned.)

Ky., Sergeant.—M. J. Moses states he is not interested in recently-noted enterprise to develop coal rights in Letcher county.

Va., Grundy.—J. H. Stinson, Miles Charles, W. Dennis and others are considering development of coal mines.

Va., Grundy.—Miles and Green Charles purchased coal property, it is reported, for \$40,000.

W. Va., Charleston.—Gravity Coal & Coke Co. has, it is reported, purchased 800 acres canal and Pocahontas coal land.

W. Va., Charleston.—Gascoaloil Company incorporated with \$25,000 capital stock by S. B. Brawley and seven others. (See "Gas and Oil Developments.")

W. Va., Mount Hope.—Long Branch Coal Co. incorporated with \$50,000 capital stock by C. M. Lilly, T. H. Snyder, P. M. Snyder and others.

W. Va., Bend.—Spruce Bend Coal Co. incorporated with \$300,000 capital stock by P. M. Sharpless, J. Comly Hall, Norris S. Ingram, William L. Jenkins and S. M. Andreas, all of West Chester, Pa.

### CONCRETE AND CEMENT PLANTS

Ala., Spocari.—Portland Cement.—T. M. Wingo, president American National Bank, El Paso, Tex., advises Manufacturers Record that purchasers of Alabama Portland

Cement Co. at Spocari (some of whom are interested in Southwestern Portland Cement Co. of El Paso) will incorporate company at once; early in January will begin rehabilitation and necessary improvement of plant, with view to later modernizing and increase of capacity; also contemplate manufacturing agricultural lime. (Recently noted under "Ala., Dethopolis.")

Tex., Mason.—Concrete Blocks.—B. Ritter contemplates erecting factory to manufacture concrete blocks.

Tex., Palestine.—Joseph Myers, proprietor Crown Bottling Works, will erect concrete and brick plant.

### COTTON COMPRESSES AND GINS

Ala., Anniston.—Calhoun Gin Co. will rebuild cotton gin; plans not made. (Recently reported burned.)

Ark., Centerville.—Company organized with \$5000 capital stock to operate cotton gin, etc.; H. B. Hardy, president. (See "Lumber Manufacturing.")

Ga., Cusseta.—J. D. and Charles MacCar-dee will install new water wheel in cotton gin. (See "Flour, Feed and Meal Mills.")

### COTTONSEED-OIL MILLS

Tenn., Trenton.—Tennessee Cotton Oil Mills Co., John Meyers, vice-president, will rebuild plant recently reported burned; new mill will double capacity of one destroyed.

### DRAINAGE AND IRRIGATION

Ark., Harrisburg.—Commissioners' Drainage District No. 5 (Bayou DeVine) awarded contract to R. H. McWilliams of Chicago and Walnut, Ill., at about \$200,000, to construct drainage canals; estimated to require removal of 1,000,000 cubic yards of earth.

Ark., Helena.—Commissioners' Beaver Bayou Drainage District, Welford White, secretary, approved survey made by C. B. Bailey, engineer, for drainage system; district, according to plans, will drain 50,000 to 60,000 acres; estimated cost \$150,000. (Recently mentioned.)

Fla., Tallahassee.—Trustees Internal Improvement Board awarded contract to Miami Engineering Co. for canal construction in connection with proposed drainage of the Everglades previously mentioned at various times.

Ga., Rome.—Georgia Overhead Irrigation Co. incorporated with \$200,000 capital stock by J. E. Dean of Rome, J. G. Hunt of Atlanta, Ga., and S. P. Coalson of Carrollton, Ga., to promote irrigation of land by overhead system; plan is to conduct pipes over field on poles 10 or more feet high; pipe lines about 40 feet apart and have sprinkler nozzles.

Tex., Austin.—Del Valle Irrigation & Milling Co. incorporated with \$20,000 capital stock by Charles G. Jones, J. G. Jones and J. C. Dumont.

Tex., Delvalle.—Delvalle Irrigation & Milling Co. incorporated with \$20,000 capital stock by Charles G. Jones, J. G. Jones and J. C. Dumont; proposes to construct dam across Colorado River and irrigate about 10,000 acres; reported cost, \$35,000. (Previously mentioned.)

Tex., Houston.—N. G. Kolb, engineer, states he is now making preliminary survey of about 50 acres for Drainage District No. 5. When this is completed, statement of plans and specifications will be furnished. (Recently noted.)

Tex., Plainview.—Messrs. Simmons, McCutcheon, Rudell and Kaufman of Des Moines, Iowa, purchased from Wilkins Bros. & Harp of Plainview 18,600 acres of land for about \$500,000; 4000 acres are in cultivation; purchasers will divide property into 40-acre tracts and plan various improvements, including 200-acre demonstration farm and irrigation system; Clingman-Hall Machinery Co. of Plainview has contract for first irrigation well, pump and power plant to have guaranteed production of 2000 gallons water per minute; contractors will drill 14-inch well and install 30-horse-power engine.

### ELECTRIC PLANTS

Ala., Healin.—W. O. Grant contemplates construction of electric-light plant.

Fla., Fort Pierce.—City voted \$90,000 bond issue for electric-light plant, sewers and water-works; R. Whyte, Mayor. (Recently noted to vote \$15,000 for electric-light plant.)



Fla., Fort Pierce.—City voted \$15,000 bond issue for construction of electric-light plant; R. Whyte, Mayor. (Recently mentioned.)

Fla., Tampa.—Tampa Electric Co. will increase capital stock from \$1,700,000 to \$1,870,000.

Fla., Tampa.—Tampa Electric Co. Alvah K. Todd, secretary, contemplates increasing capital stock from \$1,700,000 to \$1,870,000.

Fla., Winter Haven.—Town Council granted franchise to W. F. Boyd for construction of electric-light system.

Ga., Douglas.—City voted \$15,000 bond issue for construction of electric and water systems. Address The Mayor.

Ky., Catlettsburg.—Big Sandy Electric Co. incorporated with \$5000 capital stock by C. W. Polling, F. F. Fished and S. B. Warnock.

La., Donaldsonville.—City is considering installation of engines in power-house; cost about \$30,000; Charles Maurin, Mayor.

Mo., Grandview.—J. E. Fred is interested, it is reported, in construction of electric-light plant.

Mo., Kansas City.—Kansas City Billiard Table Co. will erect dry kilns. (See "Woodworking Plants.")

Mo., Trenton.—Burdette L. Brown, Pontiac, Mich., has, it is reported, purchased controlling interest of Citizens' Gas & Electric Co. and will improve plant.

N. C., Spencer.—Southern Railway, B. Herman, chief engineer, 1300 Pennsylvania Ave. N. W., Washington, D. C., will erect power-house. (See "Railway Shops, Terminals, Roundhouses, etc.")

Okla., Ponca.—City is having plans prepared by Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., for electric-light plant; \$30,000 bond issue voted. (Recently mentioned.)

Tenn., Nashville.—Nashville Railway & Light Co. will erect \$7000 emergency station on Fourth Ave., North.

Tex., Calvert.—Calvert Water, Ice & Electric Light Co. secured new 50-year franchise and will expend \$14,000 in improvements to electric light and water systems.

Tex., Wichita Falls.—Falls Electric Co. incorporated with \$5000 capital stock by K. K. Kemper, T. L. Farmer and H. V. Culp.

Va., Charlottesville.—Chesapeake & Ohio Railway Co. contemplates rehabilitating electric power and street railway plants. W. O. Watson may be addressed.

W. Va., Hutchison.—Consolidation Coal Co., Jere H. Wheelwright, president, Continental Bldg., Baltimore and Calvert Sts., Baltimore, Md., will erect central power plant; concrete and brick construction; cost \$300,000, including machinery; steel and machinery contract, including three 1000-kilowatt gas engines, awarded to Bethlehem Steel Co., South Bethlehem, Pa.

W. Va., Sistersville.—Sistersville Electric Light & Power Co., Ralph Broadwater, president, awarded contract to McClintic-Marshall Construction Co., Rankin Station, P. O. Braddock, Pa., to erect steel building for power plant; 2000 H. P. capacity; machinery purchased; cost \$35,000; John J. Rea (recently noted to have contract), Clarington, O., will have charge of work; all other contracts let.

#### FERTILIZER FACTORIES

Ga., Savannah.—Phosphate Mining Co., J. M. Lang, vice-president, 124 Bay St. East, has placed contracts for furnaces, acid chambers and tower, with exception of wood work of chamber building; probably let contract within few days for mill building, storage shed and frame of acid chambers; has commenced grading, railroad tracks and artesian well; plant to have capacity of 50,000 tons acid phosphate per annum; total cost within \$500,000; construction, brick or concrete foundation, brick furnace room and fire walls; fireproof roofings; fire equipment. (Recently noted.)

N. C., Charlotte.—Interstate Chemical Co., W. B. Chisolm, president, Charleston, S. C., awarded contract to J. A. Jones of Charlotte to erect fertilizer factory; in addition to main building will be storage department for handling of raw and finished product and acid chambers; capacity 60,000 tons annually; cost \$350,000, including site, buildings and machinery. (Recently mentioned.)

#### FLOUR, FEED AND MEAL MILLS

Ala., Tuskegee.—B. M. Hardwick will establish grist mill; machinery purchased.

Ark., Centerville.—Company organized with \$5000 capital stock to operate grist mill, etc.; R. B. Hardy, president. (See "Lumber Manufacturing.")

Ga., Cusseta.—J. D. and Charles MacCar-dee will remodel corn mill and cotton gin;

double capacity of corn mill; install new water-wheel to operate cotton gin.

Mo., De Soto.—De Soto Roller Mills incorporated with \$50,000 capital stock; Henry Lepp, president and manager; John F. Barrett, secretary-treasurer; manufacture flour, meal and feed; 100-barrel mill.

N. C., Stony Point.—Stony Point Milling Co. organized with B. S. Moore, secretary; will establish roller mill of 50 to 60 barrels capacity; purchased machinery, exclusive of power equipment, consisting of 50 to 60-horse-power engine and boiler.

Tex., Mason.—Will Ellebracht will install flour mill recently noted; operated by gasoline engine. (See "Machinery Wanted.")

#### FOUNDRY AND MACHINE PLANTS

Ala., Birmingham.—Pipe Works.—United States Cast-Iron Pipe & Foundry Co., 71 Broadway, New York, will erect additional buildings; awarded contract to Ritter-Conley Manufacturing Co., Pittsburgh, Pa., for 1500 tons of structural material.

La., Lake Charles.—Ditching Machinery—Hartsough Stewart Construction Co. incorporated with \$300,000 capital stock to manufacture rotary ditching machinery; Walter W. Hartsough, president; Frank P. Eastman, vice-president; Frank E. Jones, secretary-treasurer.

Tenn., Cleveland.—Cleveland Foundry and Machine Works incorporated with \$20,000 capital stock by C. A. Horner, D. D. Telpett, J. C. Ramsey, G. T. Denton and R. P. Sullivan.

Tex., Huntsville.—Blacksmith Shop.—State will rebuild burned blacksmith shop at State

porated with \$30,000 capital stock by J. W. Kelley, J. A. Copeland and J. M. Heckley.

W. Va., Buckhannon.—Bartlett-Hiner Company incorporated with \$25,000 capital stock by C. E. Hiner, L. W. Bartlett and G. C. Arnold, all of Buckhannon; Alston G. Dayton and Arthur S. Dayton of Philippi, W. Va.

W. Va., Charleston.—Pittsburg Oil & Gas Co. incorporated with \$25,000 capital stock by H. S. Rummel and others.

W. Va., Clarksburg.—McCord Oil & Gas Co. incorporated with \$10,000 capital stock by J. M. Crias and Guy S. Wine of Clarksburg, G. S. Nuzum and J. F. Nuzum, Bridgeport, W. Va., and others.

W. Va., Charleston.—Gascoal Oil Company incorporated with \$25,000 capital stock by S. B. Brawley, D. A. Brawley, W. B. Brawley, H. D. Brawley and R. M. Brawley; will drill for oil and gas and mine coal.

W. Va., Huntington.—Sunrise Oil & Gas Co. incorporated with \$25,000 capital stock by F. L. Enslow, K. L. Hamilton, I. R. Titus, Ira Smith and Ira Breibaum.

#### ICE AND COLD-STORAGE PLANTS

Fla., Jacksonville.—Jones-Chambliss Company contemplates erecting refrigerating plant.

Ky., Bowling Green.—T. W. Jenkins and W. M. Morris of Atlanta, Ky., will erect ice plant.

Md., Baltimore.—City Ice Co., William H. Green, president, 36 Gunther Bldg., awarded contract to York Manufacturing Co., York, Pa., to prepare plans and erect ice plant;

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Penitentiary; Oscar B. Colquitt, Governor. (See "Woodworking Plants.")

Va., Roanoke.—Stoves.—K. A. Coppridge, Richmond, Va., contemplates, it is reported, establishment of stove foundry.

W. Va., Parkersburg.—Machinery.—Miami Machine Co. incorporated with \$300,000 capital stock by P. P. H. Conover, G. L. Camden, Simms Powell and H. P. Camden of Parkersburg, and James Turpin, Dayton, O.

#### GAS AND OIL DEVELOPMENTS

Ky., Ashland.—Ashland Oil & Gas Co. incorporated with \$10,000 capital stock by W. E. Van Sant, Proctor K. Malin and R. H. Van Sant.

Okla., Ardmore.—City Gas Co. organized with \$100,000 capital stock; purchased properties and gas franchise of Ardmore Heat & Light Co.; will construct eight miles of extensions; P. C. Dings, president, Ardmore; J. S. Connelly, secretary-treasurer, Carthage, Mo. (Recently mentioned.)

Okla., Tulsa.—Prairie Oil & Gas Co. is reported to have purchased White & Sinclair's oil properties at \$2,000,000; includes 2000 acres of leases; daily production of 8000 barrels oil, etc.

Tex., Albany.—Albany Natural Gas Co. organized with John F. Sedwick president, N. L. Bartholomew vice-president, F. B. Cloud secretary-treasurer; will construct natural-gas pipe line.

Tex., Wichita Falls.—Developers' Oil & Gas Co. incorporated with \$30,000 capital stock by C. W. Bean, J. Markowitz and Frank Kell.

Tex., Vernon.—Pease River Oil Co. incor-

porated with \$30,000 capital stock by J. W. Kelley, J. A. Copeland and J. M. Heckley.

S. C., Columbia.—City will construct refrigerating plant and abattoir; bids received until January 9; R. J. Blalock, council superintendent, Department of Health. (See "Miscellaneous Enterprises.")

#### LAND DEVELOPMENTS

Ala., Birmingham.—George H. Miller, landscape architect, Boston, Mass., prepared plans for improvement of park tract on Highland Ave. in vicinity of Twenty-sixth Ave.; cost \$10,000; Otto Marx and John M. Caldwell appointed committee.

Ala., Florida.—National Orchard Co., W. R. McDuffie, vice-president, Indianapolis, Ind., will develop 300 acres of pecan orchard recently noted; capital stock, \$50,000; improvements include clearing land and setting out trees; cost \$75,000; W. C. McLauchlin, engineer in charge. (See "Machinery Wanted.")

Ark., Highland.—Bert Johnson Orchard Co. incorporated with \$75,000 capital stock by Bert Johnson, H. E. Bemis, W. N. Bemis, Thomas C. McRae, Jr., and Thomas Waters.

Fla., Harwood.—American National Land Corporation, Chicago, Ill., purchased 15,000 acres in Volusia county; will improve, clear and divide into model farms.

Fla., Miami.—J. L. Burre, Leavenworth, Kans., purchased two 20-acre farms, one of marl prairie and other of pine lands; proposes to plant grove of grapefruit, mangoes and Avocados on high land tract and winter vegetables on marl tract; will erect residence in Avocado Bluff.

Fla., Tampa.—Dade City Highlands Co. incorporated with \$50,000 capital stock; Lee Dekle, president; James F. Taylor, vice-president and manager; J. R. Dekle, treasurer; K. I. McKay, secretary.

Ga., Americus.—J. D. Whittle, Blacksville, S. C., purchased from Henry G. Bagley, Atlanta, Ga., orchard containing 50,000 young peach trees and 75,000 older trees; reported to pull older trees and cultivate cotton.

Ga., Augusta.—Wheeler Heights Company elected P. A. Steiner president, increased capital stock from \$100,000 to \$150,000 and accepted options on 1800 acres of land which it will develop as residential suburb; committee will employ supervising architect and landscape engineer to plat property, prepare plans for clubhouse, hotel, etc.; plans to convert McRae's Creek into lake covering about 75 acres, construct automobile and bridge path around lake, build roads, streets and 18-hole golf course, develop 60-acre park, construct water-works and sewerage system, erect clubhouse and hotel, etc.; latter to be fireproof, probably of brick and concrete construction; lots will vary from one to five acres. (Recently mentioned.)

Ga., Clinch County.—Georgia-Carolina Land Co. purchased property in Clinch county for \$40,000 and will develop for farming; H. E. Hoover, president, Batesburg, S. C.; E. J. Best, vice-president, Columbia, S. C.; H. J. Gregg, secretary-treasurer, Columbia, S. C. (Recently reported incorporated under Columbia, S. C., with \$9000 capital stock.)

Ky., Louisville.—Louisville Boat Club purchased 12 acres and will improve; construct docking facilities, including marine railway, road from clubhouse to car line, etc. (See "Miscellaneous Structures.")

La., New Iberia.—Southwestern Traction & Power Co., F. W. Crosby, president, New Orleans, La., will establish resort on Spanish Lake; build hotel, etc.

Miss., Clarksdale.—Yazoo-Benders Cotton Co. incorporated with \$100,000 capital stock by T. B. Watkins, L. A. Gilliam and Dan C. Brewer.

Okla., Muskogee.—Sidney Realty Co. incorporated with \$5000 capital stock by Sidney A. Egolf, Carl Purcell and W. D. Egolf.

S. C., Columbia.—Carolina Land & Promoting Co. incorporated with \$20,000 capital stock; purchased 2500 acres farming land for \$65,000, and will divide into small tracts; W. H. Ingram, president; G. Howard Caldwell, secretary-treasurer.

S. C., Jacobs.—Columbia syndicate purchased for \$12,000 1000 acres of farming land from W. D. Bewley of Chester, S. C., and C. S. Sullivan of Anderson, S. C., through real estate agency of Bollin, Ellison & Bollin of Columbia, S. C.; purchasers will divide property into small farms and plan various improvements.

Tex., Donna.—La Donna Canal Co., F. L. Hannum, superintendent, will expend about \$40,000 to increase pumping facilities; placed machinery orders for 30-inch and 36-inch centrifugal pumps, 150-horse-power boiler, two engines and necessary attachments. (Recently noted.)

Tex., Plainview.—Messrs. Simmons, McCutcheon, Rudell and Kaufman of Des Moines, Iowa, purchased from Wilkins Bros. & Harp of Plainview 18,000 acres near Plainview for about \$500,000; will divide property into 40-acre tracts, irrigate and develop 200-acre demonstration farm. (See "Drainage and Irrigation.")

Tex., Rockport.—Gulf Coast Immigration Co., A. L. Matlock, president, 517 Bedell Bldg., San Antonio, Tex., states as follows relative to company's lands: Company owns and controls 10,000 lots at Rockport and 7500 acres adjoining on Live Oak Peninsula; will divide the 7500 acres into 3000 farm tracts of one to twenty acres, these to be sold in connection with 3000 town lots; balance of town lots to be sold without farm tract attached. (Recently noted.)

Tex., San Antonio.—Travis F. Jones and James A. Logwood purchased 11,000 acres of land in Wharton and Matagorda counties; transaction involves about \$500,000; J. G. Roach & Son acquired portion of property and will cultivate cotton; Messrs. Jones and Logwood will divide balance of land into tracts of 40, 80 and 160 acres, improve with dwellings and wells, and colonize with farmers from Germany, Austria, Poland and Northern Italy; also plan to establish cannery for fruits and vegetables and build commission-house.

Tex., Springfield.—Macnirby Bros., St. Paul, Minn., purchased 8000 acres in Jim Wells and Duval counties for \$75,000; will divide and colonize.

Va., Martinsville.—T. G. Burch and others will develop 200 acres of land; subdivide into lots for manufacturing and residence

sites. (Recently noted to have purchased land.)

Va., Portsmouth.—Washington Orchard Co. incorporated with \$32,000 capital stock; C. W. Walker, president; P. H. Larkin, vice-president; L. P. Slater, secretary-treasurer.

W. Va., McNeill.—Valley View Orchard Co. incorporated with \$25,000 capital stock by H. C. Feller, M. F. Poling, Jr., and R. E. Saville of McNeill; L. E. Orndorff and D. C. Marshall of Romney, W. Va.

### LUMBER MANUFACTURING

Ala., Conecuh County.—Alger Sullivan Lumber Co., Century, Fla., will develop timber tract recently purchased in Conecuh county; now extending logging railroad into tract. (Previously noted.)

Ark., Arkansas City.—Grayling Lumber Co., P. S. McLurg, manager, Monroe, La., purchased sawmill machinery for plant recently noted to be built.

Ark., Arkansas City.—Kimball-Lacy Lumber Co. will rebuild burned mill. (Recently mentioned.)

Ark., Centerville.—Company organized with \$500 capital stock to operate sawmill, grist mill and cotton gin; machinery purchased; H. B. Hardy, president; E. Blessing, vice-president; W. R. Blythe, secretary-treasurer.

Ark., Lepanto.—Wels Peterson Box Co., Cairo, Ill., purchased 1000 acres cottonwood land in Polk county for \$20,000; will build box factory and railroad.

Ark., Little Rock.—Red River Cottonwood Co. incorporated with \$25,000 capital stock by H. G. McBurney, C. B. Kelley, Vernon C. Chaney, William C. Chaney and Laura E. Chaney.

Ark., Little Rock.—Sparkman Mill & Lumber Co. incorporated with \$50,000 capital stock by L. Sparkman, V. L. Webb, B. C. Howell, A. C. Webb and O. Clark.

Ga., Brunswick.—Refuge Lumber Co. incorporated with \$100,000 capital stock; purchased pine stumpage owned by Camden Lumber Co. on Satilla River; J. R. Buckwalter, president; A. I. Buckwalter, vice-president; John J. Paschall, secretary.

La., Baton Rouge.—F. B. Williams, Patterson, La., will not erect mill or at present operate tract of cypress timber lands recently noted purchased.

La., Hammond.—Hammond Lumber Co. contemplates installing planing-mill.

La., Grosse Tete.—Schwing Lumber & Shingle Co. purchased for \$23,000 about 1000 acres timber land.

La., Lott.—Bowman Bros. purchased McCall Plantation and will erect sawmill.

Miss., Brookhaven.—Elk Lumber Co. incorporated with \$50,000 capital stock by L. O. Crosby, S. W. Hoskins and Dalton Moore; reported to acquire idle mill of Pearl River Lumber Co.

Miss., Olive Branch.—Olive Branch Lumber Co. incorporated with \$20,000 capital stock by J. E. Birmingham, J. W. Duty, J. N. Brown and F. H. Norvell.

Miss., Richey.—Norton Hardwood Co. will operate completed plant at Richey; W. G. Norton, president and manager; Frank A. Norton, secretary. (Recently noted incorporated with \$500 capital stock under Memphis, Tenn., by A. B. Knipmeyer of 218 Memphis Trust Bldg., Memphis, and others.)

Miss., Sumrall.—J. J. Newman Lumber Co., F. L. Peck, president, main office Hattiesburg, Miss., is proceeding with rebuilding of burned plant; contemplates completion by May 1; sawmill 12x70; docks 80x300; fireproof, steel and concrete construction; steel contract let to Milwaukee Bridge Co., and machinery to Filer & Stowell Company, both of Milwaukee, Wis.; all contracts placed; cost about \$150,000; daily capacity 300,000 feet yellow pine lumber. (Previously noted.)

Mo., Little Rock (not a postoffice).—Arthur N. Dickson, Napton, Mo., will install sawmill, planer, and spoke and handle machinery; manufacture hardwood lumber; capacity about 10,000 feet daily. (See "Machinery Wanted.")

N. C., Bee Tree.—Bee Tree Lumber Co. will erect hardwood mill with single band and band resaw; machinery contract awarded.

Tenn., Maryville.—G. N. Mize & Son will rebuild planing mill and mantel and school desk plant, recently burned.

Tenn., Nashville.—John B. Ransom Lumber Co. increased capital stock from \$600,000 to \$660,000.

Tenn., West Point.—F. C. McGee will erect planing mill and finishing plant; cost \$12,000.

Tex., Milvid.—Miller-Vidor Sawmill Co., C. S. Vidor, president, Beaumont, Tex., closed contract for rebuilding drykilns recently reported burned; erect six-track

three-room 110-foot drykiln; fireproof; concrete walls and roof.

Va., Arcadia.—Virginia Lumber & Extract Co. of 500 Second National Bank Bldg., Wilkes-Barre, Pa., and main office at Arcadia, will operate plant recently noted acquired under lease with option of purchase; mill capacity, 50,000 feet; capital stock, \$450,000; J. G. McHenry, president; E. W. Mulligan, vice-president; John Flanigan, secretary-treasurer.

### MINING

Ala., Colbran.—Iron.—Alabama Iron & Mining Co., J. A. Yates, president, temporary office, 514 Chamber of Commerce Bldg., Birmingham, Ala., purchased 847 acres ore lands and expects to acquire 1000 additional acres adjoining; purchase price about \$75 per acre; daily capacity of plant when completed, 400 tons; cost of equipment, including sidetrack, about \$25,000; engineer in charge, E. J. Bird, present address, Birmingham office. (Recently noted chartered under Ala., Birmingham, with \$100,000 capital stock.)

Ga., Macon.—Monarch Mining & Smelting Co., James T. Ross, president, will erect reduction plant.

Ga., Rome.—Sand.—Nickajack Sand Co. incorporated with \$1800 capital stock by R. M. Hoyt, J. L. Johnson, Jr., and others.

Ky., Harlan.—A. F. Whitfield and associates organized company to develop mines on Clover Fork near Harlan.

Mo., Cartersville.—Zinc.—George Jones, Edward Steele and J. I. Jester will, it is reported, develop zinc mines on Missouri Zinc Fields land and may erect concentrating plant.

Mo., Joplin.—Lead and Zinc.—Big Western Mining Co. incorporated with \$50,000 capital stock by W. E. West, B. T. Becker and B. F. Dye to develop lease on Mexico-Joplin Mining Co.'s property.

Mo., Joplin.—Lead and Zinc.—May Doo Mining Co. incorporated with \$50,000 capital stock by Frank H. St. Clair, J. Baird and S. A. Keller.

Mo., Joplin.—Lead and Zinc.—O. H. Gentry and associates leased Armit mining land and propose development.

Mo., Kansas City.—Lead and Zinc.—Lowe Elgrim Mining Co. incorporated with \$25,000 capital stock by E. C. Gussman, W. C. Dillon, E. J. Dillon and others.

Mo., Kansas City.—Lead and Zinc.—Pocahontas Lead & Zinc Mining Co. incorporated with \$110,000 capital stock by Stanley Watson, Jesse M. Short, E. M. Falk and others.

Mo., Thoms Station (not a postoffice).—Zinc.—Vinegar Hill Zinc Co. of Wisconsin, W. N. Smith, general manager, has, it is reported, leased 40 acres of mining property from W. O. Coats and S. K. Ortt of Joplin, Mo.; will install drill and develop.

N. C., Winston-Salem.—Asbestos.—T. V. Edmunds, care of Southern Development Co., Box 188, has located asbestos deposit and is interested in organization of company to develop same.

Va., Bristol.—Zinc.—Virginia Zinc & Chemical Corporation incorporated with \$1,800,000 capital stock; John T. Williams, president, New York; John T. Williams, Jr., vice-president, Bristol; William Spencer, secretary-treasurer, New York; engineers in charge, John T. Williams & Son, 27 William St., New York.

### MISCELLANEOUS CONSTRUCTION

Ala., Montgomery.—Underpass.—Louisville & Nashville Railroad, W. H. Coustenay, chief engineer, Louisville, Ky., will construct underpass.

Ark., Texarkana.—Levee.—Bids will be received for 2,000,000 yards levee work; 5 to 12 feet high; for further information address R. L. Cheschire, Huggins House, Texarkana; Lawrence Bros. and R. L. Leonard, Memphis, Tenn., or S. M. Bush, Camden, Ark. (See "Machinery Wanted.")

Fla., Pensacola.—Piers, etc.—G. A. Berry, chief engineer Gulf, Florida & Alabama Railway, Blount Bldg., advises Manufacturers Record that marine terminal contemplates construction of reinforced concrete bulkhead wall on United States bulkhead line, from which will be built four piers, each 100 feet by (ultimately) 1200 feet long; piers to consist of reinforced concrete walls back-filled with sand for permanent quays; areas behind bulkhead to be pumped full of sand, to create 60-acre tract for distribution yard and lumber and naval stores yards; at least two piers to be shedded entire length with fireproof material; one of remaining piers constructed as coaling dock; slips between piers to be dredged to pierhead line, 30 feet water at low tide; construction of one pier and portion of bulkhead wall to be commenced

soon, to be ready for service about April 1; estimated cost, \$500,000. (Previously noted.)

Ga., Macon.—Underpass.—Central of Georgia Railway (C. K. Lawrence, chief engineer, Savannah, Ga.), Southern Railway (B. Herman, chief engineer, 1300 Pennsylvania Ave. N. W., Washington, D. C.), and Georgia Southern & Florida Railway (W. C. Shaw, Jr., chief engineer, Macon), accepted plans prepared by Mr. Lawrence for underpass at Bay St. (Recently mentioned.)

La., Shreveport.—Levee.—Caddo Levee Board awarded contract to Mike M. Hunt of Shreveport at about \$26,000 to construct about 140,000 cubic yards of levee from Cuba Pl., on right bank Red River, to mouth of Twelve-Mile Bayou; Section 1 will be 8200 feet long, contain 65,000 cubic yards; Section 2, 9158 feet long, contain 75,000 cubic yards; Board requested State Engineers, New Orleans, La., to survey and estimate cost of enlarging levee from Balton Bluff, Ark., to Peru Plantation, La.; Walter H. Hoffman, Assistant State Engineer, New Orleans, La. (Call for bids for former work recently noted.)

Md., Baltimore.—Coal Trestles and Bunkers.—Philadelphia, Baltimore & Washington Railroad, Gamble Latrobe, general agent, Union Station, will, it is reported, construct coal trestles and bunkers at foot of Lanvale St. and Lafayette Ave.

Md., Baltimore.—Board of Awards authorized advertisement for bids for dredging upper harbor; estimated cost, \$15,000; O. F. Lackey, Harbor Engineer, states bids will be opened December 27; specifications at office of Harbor Board. (See "Machinery Wanted.")

Mo., Atherton.—Commissioners Blue Bottom Levee District are having plans prepared for levee to be constructed around district north of Atherton, in Jackson county; Jones & Smith, Independence, Mo., are engineers.

Tex., Donna.—Canal.—La Donna Canal Co., F. L. Hannum, superintendent, placed orders for machinery recently noted. (See "Land Developments.")

Va., Buckroe Beach.—Pier.—Holston & Lewis of Fox Hill (P. O. at Rip-Raps), Va., awarded contract to W. D. Murray, Norfolk, Va., to erect pier; 200 feet long; extend to point where water is 15 feet deep; wharf-house about 50 feet square on end of pier; install ice crushers and erect icehouses; pier to be 20 feet wide, except at end upon which wharfhouse will be located; contract price, \$4200, but it is estimated that pier and wharfhouse complete will cost \$9000.

### MISCELLANEOUS ENTERPRISES

Ala., Birmingham.—Printing.—Roberts & Son purchased Roberts Printing Co.; will install automatic machinery and continue as separate company with following officers: Robert W. Ewing, president; Richard V. Evans, vice-president, and James G. Smith, secretary-treasurer; Roberts & Son will purchase and install printing machinery in building at 18th and 19th Sts. after structure is rebuilt; plant and building recently reported burned.

Ala., Mobile.—Lithographing and Engraving.—Aynsley Lithographing & Engraving Co., Joseph J. Aynsley, president, will succeed Aynsley Process Engraving Co., and will engage in both lithographing and engraving; purchased lithographing plant of Delchamps Printing Co.; offices at 75 St. Michael St. (Recently reported incorporated with \$10,000 capital stock.)

Ark., Reyno.—Construction.—Cherokee Bay Construction Co. has organized with Joseph Kreis president and manager, E. C. Mock vice-president, Isaac Ebbert treasurer, Geo. E. Woodruff secretary; will build railroads, etc. (Recently reported incorporated with \$50,000 capital stock.)

Fla., Pensacola.—Transfer Company.—Banks Transfer & Cab Co. incorporated with \$10,000 capital stock by William H. Mason, H. B. Banks, J. R. Mason and M. O. Banks.

Ga., Savannah.—Navigation.—Merchants & Farmers' Navigation Co. organized with \$24,000 capital stock by T. S. Heyward of Savannah; R. L. Brannon and M. Currie of Augusta, Ga.; J. T. Wade of Hershman, Ga., and John Mears of Mears, Ga.

Ky., Dover.—Mineral Water.—Audubon Mineral Water Co. (present address, Maysville, Ky.) incorporated with P. G. Smoot, president; J. W. Bramel, first vice-president; Charles E. Curran, secretary; E. L. Manchester, treasurer; owns mineral well and will pipe water to Dover, where bottling and sales department will be established; awarded contract to Harding & Simons, Maysville, Ky., to erect temporary structure; 25x60 feet; cost of machinery, \$1000;

daily capacity, 8000 to 10,000 gallons mineral water. (See "Machinery Wanted.")

Ky., Frankfort.—Transportation.—Kentucky & Ohio Packet Co. incorporated with \$10,000 capital stock by C. G. Marshall, D. H. Vaughn and E. C. Marshall.

Ky., Lexington.—Laundry.—New Model Laundry Co. incorporated with \$3000 capital stock by Linda H. Evans, Kirby Muir and Jessie Harp.

Ky., Louisville.—Street Sprinkling.—Louisville Street Sprinkling Co. incorporated with \$3000 capital stock by Fred Drexler, James Wiemer and P. L. Fried, Jr.

Ky., Prestonsburg.—Publishing.—Monitor Publishing Co. incorporated by F. A. Hopkins, E. V. Hall, W. H. May and W. B. Ward.

La., New Orleans.—Co-operative Stores, etc. General Business Co., Emile Blenvenu, president, temporary offices, 714 Maison Blanche Bldg., will increase capital stock to \$5,000 within next 40 days; was recently organized to operate co-operative stores and product selling bureaus in Southern sections.

La., Shreveport.—Laundry.—Enterprise Laundry Co. incorporated with \$20,000 capital stock; F. R. Hodges, president; Sam Weiner, Jr., vice-president; W. H. Linxwiler, secretary-treasurer.

Md., Towson.—Publishing.—Baltimore County Jeffersonian Publishing Co. incorporated with \$10,000 capital stock to publish newspaper; James Rittenhouse, president; W. Smith, vice-president; Elmer R. Halle, secretary; Martin J. O'Hara, treasurer; Harry S. Alt, 5 Jefferson Ave., manager.

Miss., Laurel.—Printing.—Consolidated Printing Co., 513 Central Ave. (recently reported incorporated by Edgar G. Harris and others with \$15,000 capital stock), will publish one daily and two weekly newspapers in Laurel and Ellisville, Miss.; organize in January.

Mo., Joplin.—Engraving.—Southwestern Engraving Co., Charles W. Fear, secretary (recently reported incorporated with \$5000 capital stock), has leased second floor of Frisco Bldg. and will install machinery to operate engraving plant; cost of machinery, \$3000. (See "Machinery Wanted.")

Mo., Kansas City.—Printing.—Charles E. Brown Printing Co. leased three-story building and will equip as addition to printing plant.

Mo., Kansas City.—Supplies.—General Supply Co. incorporated with \$2000 capital stock by S. C. Garrett, T. C. Florence and J. J. Helfer.

Mo., Richmond.—Publishing.—Ray Publishing Co. incorporated with \$12,500 capital stock by Curtis A. Betts, John A. Counsley, Jr., and William H. Quiglet.

N. C., Durham.—Lens Grinding.—Nathan Rosenstein will establish lens grinding factory.

N. C., Rockingham.—Navigation.—Pee Dee Navigation Co. (recently reported incorporated with \$50,000 capital stock to operate passenger and motor boats on Pee Dee and Yadkin rivers) has organized with Robt. L. Steele president and W. B. Cole secretary-treasurer; no material or machinery wanted at present, but may need supplies in near future.

Okla., Hollis.—Hardware.—Spooner Hardware Co. incorporated with \$20,000 capital stock by Bertha Spooner, F. M. Kays and F. C. Frede.

Okla., Oklahoma City.—Printing.—Harlow Ratliff Printing Co. incorporated with \$10,000 capital stock by F. L. and Hattie V. Ratliff of Oklahoma City and Victor E. Harlow, Shawnee, Okla.

Okla., Oklahoma City.—Plumbing.—Liability Plumbing Co. incorporated with \$5000 capital stock by Thomas J. Wilson, Louis K. Phillips and Arch D. McMullen.

S. C., Columbia.—Abattoir and Refrigerating Plant.—City will construct abattoir and refrigerating plant; provide for 70 animals per day of 12 hours, 50 per cent. of which will be cattle and 50 per cent. hogs, sheep and calves; bids received until January 9; machinery to be installed in building to be erected by city, complete plans for which are to be submitted by successful bidder; B. J. Blalock, council superintendent department of health. (See "Machinery Wanted.")

S. C., Johnston.—Publishing.—The Progress Co. incorporated with \$25,000 capital stock by J. C. Bauman, C. G. Waters, Y. M. May and F. M. Boyd.

Tenn., Memphis.—Printing.—Woolwine Manufacturing Co. incorporated with \$50,000 capital stock by L. M. Woolwine, H. E. Harvey, J. W. Woolwine, Ford N. Taylor and R. I. Moore.

Tex., Dallas.—Dye Works.—Clarence E. Linz purchased site 34x77 feet and will erect



two-story building to be occupied by Loeb Dye Works.

Tex., Fort Worth—Printing.—Ray Publishing Co. incorporated by A. T. Baker, K. T. Franklin, J. B. Baker and others.

Tex., Georgetown—Laundry.—H. F. Thompson will erect steam laundry building; stone; cost \$4000.

Tex., Wellington—Hardware and Implements.—Hamilton Hardware & Implement Co. incorporated with \$10,000 capital stock by C. P. Hamilton, D. H. Hodges and F. C. Lederer.

Va., Lynchburg—Dry Cleaning and Dyeing. Crutchfield Dry Cleaning & Dye Works incorporated with \$15,000 capital stock; E. H. Crutchfield, president; Leon Goodman, vice-president; T. J. Powell, secretary-treasurer.

W. Va., Weston—Publishing.—Lewis County Publishing Co. incorporated with \$15,000 capital stock by F. S. Schuster, M. L. B. Linger, Tom G. Skinner, James F. Cummings and Herbert M. Blair.

### MISCELLANEOUS FACTORIES

Ala., Mobile—Ice-cream.—J. R. Gasmeyer and B. H. Gasmeyer, Indianapolis, Ind., will establish ice-cream factory.

Ala., Spocarl—Lime.—T. M. Wingo, president American National Bank, El Paso, Tex., states that parties recently noted (under "Concrete and Cement Plants") as purchasing plant of Alabama Portland Cement Co. contemplate manufacture of lime for agricultural purposes. (See "Concrete and Cement Plants.")

D. C., Washington—Envelopes.—Lettervelop Co., 519 Barrister Bldg., 7th St. N. W., Washington, D. C., contemplates installing machinery to manufacture and fold envelopes. (See "Machinery Wanted.")

Fla., Manatee County—Turpentine.—Richard A. Hall, Ocala, Fla., leased 83,000 acres pine land in Manatee county for turpentine purposes.

Fla., Tampa—Gas.—Tampa Gas Co. estimates expenditures for enlargement of gas plant and laying of additional mains at \$500,000 for year ending July 1, 1912; expended \$70,000 in five months and has contracts let and being awarded for erection of plant of about \$50,000 more; estimates cost of completed plant and gas-piping system at about \$500,000. (Company previously reported to construct gas tank having capacity of 20,000 cubic feet, 150 feet high and diameter of 125 feet; also to lay about 42 miles of additional mains and to improve plant.)

Ga., Rome—Aluminum Sulphate.—North American Chemical Co. chartered with \$500,000 capital stock to mine halosite and extract aluminum, treating the ore by sulphuric acid to manufacture aluminum sulphate; purchased 1600 acres of halosite land; president, H. H. Shackleton; vice-president, T. E. Grafton; secretary, J. E. Dean.

Ga., Rome—Washing Machines.—National Domestic Laundry Co. will be organized by E. A. Heard, Jr., and others to manufacture washing machine invented by William A. Cook.

Ky., Bowling Green—Corn Planter.—Kentucky Check Row Corn Planter incorporated with \$25,000 capital stock by Martin E. Thomas, Elmer Carter, Milt Taylor and W. O. Rodes.

Ky., Louisville—Novelties.—Fossee Novelty Co. incorporated with \$25,000 capital stock by Lewis Fossee, Edward A. Ryans, Clarence R. Mullens, Curtis W. Ballard and Joseph A. McKee.

Ky., Louisville—Photographers' Supplies.—Southern Photo Mount Manufacturing Co. incorporated with \$10,000 capital stock by J. D. Dedrick, Kate M. Chapin and R. E. Dickman; will manufacture cards and similar photographers' supplies.

Ky., Newport—Nut Locks, etc.—Universal Nut & Bolt Lock Co., G. B. Martin, president, 1029 Saratoga St. (recently reported incorporated with \$50,000 capital stock), will manufacture nut locks; also installing case-hardening plant and equipment to blue small metal articles; machinery supplied and building completed.

La., New Orleans—Bags.—Bloch's Bag Blue Co. incorporated with \$3000 capital stock; Madison Truman Woodward, president; L. Leon Lowe, vice-president; Jacob Bloch, secretary-treasurer.

La., New Orleans—Railroad Tie.—Universal Concrete Tie Co. will be incorporated with \$20,000 capital stock by M. W. Carrio and others to manufacture patented reinforced concrete railroad tie; cost of plant about \$50,000.

Md., Baltimore—Clothing.—L. Greif & Bro., Butaw and German Sts., have revised plans by Frank & Kavanaugh, 328 N. Charles St.,

Baltimore, for clothing factory on Ashland and Montford Aves.; three stories; brick and stone; fireproof; Louis O. Hildebrand & Bro., 215-217 Courtland St.; Morrow Bros., 218 W. Saratoga St., and Blake & Engel, 300-301 Law Bldg., are estimating. (Previously mentioned.)

Md., Baltimore—Brewery.—Wurzburger Brewing Co. incorporated with \$100,000 capital stock; Leon S. Wurzburger, president, 503 Merchants and Miners' Bldg., German and Light Sts.; Isidore Lowenstein, vice-president; Joseph P. Burnett, secretary and treasurer, 2037 W. North Ave.

Md., Baltimore—Asphalt.—Patrick Flanagan & Sons, 120 E. Lexington St., will build asphalt plant at Harford Rd. and Exeter Hall Ave.; capacity, 3000 square yards asphalt daily.

Mo., Joplin—Zinc Oxide.—Ozark Zinc Oxide Co. will expend about \$10,000 for improvements to plant at 8th St. and Ozark Ave., and will resume operations about March 1, 1912. W. B. Wise is general manager, with offices at 50 Church St., New York.

Mo., St. Louis—Folding Boxes.—Winter-Langeneckert Folding Box Co., 715 S. 6th St., will erect additional factory building; one story; cost \$15,000; site, 104x122 feet.

Mo., St. Louis—Vinegar.—A. Braun Manufacturing Co., 609 Gratest St., will open bids January 1 to erect factory recently noted; ordinary construction; cost \$25,000; plans by O. J. Wilhelm, Granite Bldg., St. Louis; machinery includes 60-horse-power boiler, heater, pump, electric generator; bottle-filling, labeling and corking machines; bids opened March 1; daily capacity, 75 barrels of vinegar. (See "Machinery Wanted.")

Mo., St. Louis—Book Indexes.—Instantaneous Page Finder Co., 729 Central National Bank Bldg., has organized with John S. Willis, president, Buren Holmes vice-president, Charles R. Fife secretary-treasurer; not yet ready for machinery. (Recently reported incorporated with \$10,000 capital stock.)

Mo., St. Louis—Sweet Pads.—Theiell-Lothman Manufacturing Co. (operating St. Louis Sweet Pad Works at 3810 N. 9th St.) will erect one-story brick building at 4100 N. 21st St., to be equipped as addition to sweat-pad factory; cost \$7500; William Lothman is president.

Mo., St. Louis—Art Glass.—Colonial Art Glass Studio incorporated with \$5000 capital stock by Milford Bettman, James M. Smith, Israel H. McGready and others.

N. C., Charlotte—Medicine.—Hornet's Nest Lintiment Co., 410 S. Church St., will be reorganized; contemplates enlargement and improvement of plant; main office will be removed to 208 N. Brevard St.

N. C., Louisville—Mattresses.—Stovall Mattress Co. (recently reported incorporated with \$5000 capital stock) succeeds Tar River Manufacturing Co.; purchased that company's plant, including building and all machinery; Malcolm McKinnon, president; F. B. McKinnon, treasurer; H. M. Stovell, secretary and manager.

N. C., Rockingham—Aluminum.—Robt. L. Steele, president of Steele's Mills, contemplates extraction of aluminum from kaolin. (See "Machinery Wanted.")

N. C., Reldsville—Tobacco.—F. R. Penn Tobacco Co. will erect factory building; five stories; will give company's plant total floor area equal to 10 acres and increased capacity equal to 15,000,000 pounds of tobacco annually.

N. C., Walnut Cove—Tobacco.—Farmers' Union will build tobacco factory.

Okla., Oklahoma City—Candy.—Empress Candy Co. incorporated by A. Rose, B. H. Powell and L. D. Mitchell.

Okla., Tulsa—Automobile Wheels.—W. E. Urie, Kansas City, Mo., contemplates, it is reported, establishment of plant to manufacture automobile wheels.

Tenn., Chattanooga—Shoes.—St. Jo Shoe Repair Shop, G. G. Fletcher, president, 110 E. 7th St. (recently reported incorporated with \$5000 capital stock), succeeds Modern Electric Shoe Repairing Co.

Tenn., Memphis—Candy.—Belmont Candy Co. chartered with \$5000 capital stock by C. H. Trimble, O. K. Houck, L. D. Bejack and others.

Tenn., Memphis—Shade Adjusters.—Simplicity Shade Adjuster Co. incorporated with \$15,000 capital stock by A. B. Smith, J. J. Harward, H. H. Wade, J. B. Saunders and A. B. Knipmeyer.

Tex., Fort Worth—Gin and Mill Supplies.—Texas Manufacturing Co. increased capital stock from \$60,000 to \$250,000.

Tex., Hallettsville—Bottling.—Otta Rheinhardt will establish bottling works; machinery ordered.

Va., Hampton—Plaster Board.—C. Monteith Gilpin, 55 John St., New York, advises Manufacturers Record that Hercules Plaster Board Co., Wm. M. Alberti, president, has not completed organization or definitely decided on details of proposed plant. (Recently noted incorporated with \$300,000 capital stock.)

Va., Roanoke—Cigars.—Roanoke Cigar Co. incorporated with \$5000 capital stock; H. R. Jackson, president; J. A. Bear, vice-president; J. A. Jackson, secretary-treasurer.

W. Va., Wheeling—Tobacco.—Bloch Bros. Tobacco Co. will erect four-story addition to factory; 100x100 feet; fireproof construction.

### MOTORS AND GARAGES

Ala., Birmingham.—H. B. Wood, 709 Empire Bldg., is considering organization of company to manufacture one and two-horse-power motor cars for boys. (See "Machinery Wanted.")

Fla., Jacksonville.—R. L. Stringfellow will erect garage; two stories; frame.

Fla., Jacksonville.—Claude Nolan awarded contract to P. W. Long & Co., Jacksonville, to erect garage on Main St.; three stories; foundation to permit erection of three additional stories; reinforced concrete; temporary roof; plans by H. J. Klutho, Jacksonville.

Fla., Jacksonville.—John Ball will erect garage; two stories; frame.

Ga., Atlanta.—Nyberg Automobile Works, Henry Nyberg, president, Anderson, Ind., and Chicago, Ill., will, it is reported, establish automobile factory.

Ga., Atlanta.—Piedmont Auto Manufacturing Co., Candler Bldg., will soon announce plans; W. C. Woods is president; R. J. Craig, vice-president; H. A. Longshore, secretary-treasurer. (Previously noted incorporated, under "Miscellaneous Factories," with \$100,000 capital stock.)

Ga., Savannah.—Motor Vehicle Co. incorporated with \$200,000 capital stock by Sigo Myers, Seymour Stewart, W. A. Collins and others; will manufacture vehicles, automobiles, etc., making specialty of automobile horse comprising automobile drawn by mechanical horse guided by reins.

Md., Frederick.—Ideal Garage Co. awarded contract to Roy W. Poole, Frederick, to erect garage; non-combustible slow-burning material; entrance 22 feet wide; display-rooms enclosed in glass; macadam floor; composition roof carried by wooden trusses reinforced with wrought-iron tension bars over clear span of 55 feet; natural finish woodwork; electrical generator to provide own current and power for plant. (Previously noted.)

Mo., Kansas City.—J. H. Van Clostet will erect garage at 207-9-11 W. 14th St.; reinforced concrete; cost \$20,000.

N. C., Greensboro.—Ford Garage & Sales Co. incorporated with \$10,000 capital stock by R. L. Markham, W. H. McGlamery and W. M. Combs.

S. C., Clio.—Holland Motor Car Co. incorporated with \$3000 capital stock; J. L. Hubbard, president; Hugh McLaurin, secretary-treasurer.

Tex., Dallas.—Munger Auto Co. will erect garage on Commerce St.; 50x90 feet; three stories; steel frame; cost \$28,500; plans by Lang & Mitchell, Dallas.

Tex., Dallas.—Munger Automobile Co. will erect garage on Commerce St.; 50x90 feet; three stories; steel frame; cost \$28,500.

W. Va., Point Pleasant.—G. W. M. Hooff will erect building; two stories; double; cement block construction; lower floor for garage and blacksmith shop and upper floor for dwelling.

### RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

N. C., Spencer.—Southern Railway, B. Herman, chief engineer, 1300 Pennsylvania Ave. N. W., Washington, D. C., will construct oil-house, wash and locker-rooms, cinder pits, coaling plant, enlarged stock pens, powerhouse and 27-stall roundhouse. (Previously reported to make various improvements.)

N. C., Denim.—Southern Railway, B. Herman, chief engineer, 1300 Pennsylvania Ave. N. W., Washington, D. C., will construct automatic electric block three-signal system on line from Denim to Charlotte, 96 miles; work has begun on proposed system on line from Monroe, Va., through Lynchburg to Montview, 12 miles.

S. C., Columbia.—Seaboard Air Line Railway, W. L. Seddon, chief engineer, Portsmouth, Va., has begun construction of proposed terminal facilities at Cayce, across river from Columbia; improvements include

car yard with capacity for 1200 cars and shops; C. W. Lane & Co., contractors, Atlanta, Ga., are grading yard; 127,000 square yards of dirt removed; 15 parallel tracks, not including industrial tracks; work under supervision of W. G. Adams; R. B. Gand, engineer in charge; machinery in shops to be operated by electricity, generated at its own plant; estimated cost will, it is reported, be \$500,000.

Tenn., Chattanooga.—Southern Railway, B. Herman, chief engineer, 1300 Pennsylvania Ave. N. W., Washington, D. C., will improve freight terminals; contract awarded to Callahan Construction Co., Knoxville, Tenn.

W. Va., Cumbo (not a postoffice).—Baltimore & Ohio Railroad, F. L. Stuart, chief engineer, Charles and Baltimore Sts., Baltimore, Md., awarded contract to M. P. Wells, Philadelphia, Pa., to construct coal tipple, sandhouse, ash pit, storeroom and oilhouse in Cumbo yards; cost about \$90,000.

### ROAD AND STREET WORK

Ala., Birmingham.—City awarded contract to Southern Bitulithic Co., Nashville, Tenn., at \$15.172 to pave Eighth Ave. from 17th to West 20th St.

Ala., Birmingham.—City awarded contract to Paul Richter at \$2009 for macadam paving; Maury Nicholson, City Engineer.

Ala., Jasper.—Walker county will vote March 12 on \$300,000 bond issue for road construction. Address County Commissioners.

Ark., Little Rock.—Gaines Street Improvement District Commissioners awarded contract to Radcliff, Gibson & Dillingham, St. Joseph, Mo., at \$51,000 to pave Gaines St. from Markham to 28th St. with asphalt.

Ark., Little Rock.—W. F. Reichardt, engineer, submitted final report on plans and specifications for paving W. 23d St. Improvement District, and estimates cost at \$45,000; S. W. Reyburn, John T. Hicks and R. W. Rightsell are Commissioners. (Recently mentioned.)

Ala., Mobile.—City will construct 2180 square yards asphalt paving and 248 linear feet granite curbing; also 33,700 square yards wood block paving and 17,530 linear feet granite curbing; bids received until January 5; Wright Smith, City Engineer. (See "Machinery Wanted.")

Ark., Texarkana.—Improvement District No. 14 will pave streets, including State Line Ave. from Front St. to Postoffice, and Pine, Vine, Elm and Walnut Sts. between Broad and Front Sts.; estimated cost \$55,000; G. W. Fouke, Q. O. Turner and Ben Collins are commissioners of district.

Fla., De Funiak Springs.—Walton county will receive bids until January 15 to construct 60 miles of sand and clay highway; previously noted; Charles H. Gordon, Clerk. (See "Machinery Wanted.")

Fla., Jacksonville.—Duval County Commissioners awarded contract to Logan Concrete & Engineering Co. to pave Atlantic Blvd. from city limits of Jacksonville; distance, 6000 linear feet; vitrified brick paving and vitrified brick curbing.

Fla., Jacksonville.—Duval County Commissioners invite bids until December 29 for furnishing material and constructing vitrified brick, concrete and asphalt macadam pavements on New York Ave. from point near Yukon to county line; also on John Anderson highway from Loretta to county line; Gail L. Barnard, County Engineer. (Contract for grading New York Ave. lately reported awarded. (See "Machinery Wanted.")

Fla., St. Petersburg.—City will pave about one-half mile of streets; width to be principally 20 feet; 2d St. to be 30 feet wide; contracts to be let in January. Address The Mayor.

Fla., Vernon.—Washington county will vote December 28 on \$300,000 bond issue for road construction. Address County Commissioners.

Ga., Bainbridge.—City voted \$25,000 bond issue for street improvements. Address The Mayor. (Recently mentioned.)

Ga., Dublin.—City voted \$300,000 bond issue for road and bridge construction. Address The Mayor.

Ga., Quitman.—City will not vote on \$23,000 bond issue for street paving. Address The Mayor. (Recently mentioned.)

Ky., Benton.—Town will construct concrete sidewalks. Address Town Trustees.

Ky., Lexington.—City will receive bids until December 23 for construction of S. Limestone St. from Winslow St. to Virginia Ave. and Water St. from Limestone St. to Broadway with vitrified brick, asphalt and creosoted wooden blocks; also for resurfacing with asphalt over present brick paving of W. 3d St. from Jefferson to Henry St.; John

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Skain, Mayor. (Recently mentioned. See "Machinery Wanted.")

Ky., Louisville.—G. W. Gosnell is lowest bidder for constructing three squares of Spratt St. from Goss to Ellison Ave.; D. R. Lyman, City Engineer.

Ky., Louisville.—Henry Bickel is lowest bidder at \$30,310.40 for construction of Southern Parkway from Castlewood to Shelby St.; D. R. Lyman, City Engineer.

Ky., Tompkinsville.—Monroe county will construct four miles of road from Tompkinsville toward Cumberland River; bids received until December 29; B. L. Bradshaw, chairman Road Commissioners. (See "Machinery Wanted.")

La., Crowley.—City will construct 33,000 square yards concrete crossings; bids received until December 22; R. J. Boudreaux, City Clerk. (See "Machinery Wanted.")

La., New Orleans.—Thomas Eagan is lowest bidder for paving Burgundy St. from Poland to Dedy; W. J. Hardee, City Engineer.

La., Shreveport.—Caddo Parish Police Jury contemplates additional road construction; adopted ordinance providing for five-mill tax, which will approximate \$500,000 for road construction, and about \$100,000 annually for maintenance.

Md., Baltimore.—Paving Commission ordered paving of 7 additional streets; Lombard from Greene St. to Fremont Ave.; McEldey from Northeastern Market to Milton Ave.; Milton Ave. from McEldey to Baltimore St.; Collington Ave. from Orleans St. to Ashland Ave.; Valley from Hoffman to Chase St.; Sharp from Camden to Hill St.; R. Keith Compton, chairman commission.

Md., Baltimore.—H. K. McKay, City Engineer, states city will advertise for paving of 5 to 8 miles of streets about January 1; 75 per cent. of this to be asphalt resurfacing over cobblestones, 1½-inch binder and 1½-inch topping; 15 per cent. vitrified brick paving on 4-inch concrete base; 10 per cent. Belgian block on 6-inch concrete base; proposed to let these contracts about January 17; additional 20 miles will be advertised early in January. (Previously noted.)

Miss., Jackson.—City awarded contract to Southern Bitulithic Co., Nashville, Tenn., to pave 30,000 yards in West St. and to Creosoted Wood Block Co., New Orleans, La., to pave about 10,000 yards in Parish St.

Mo., Joplin.—City awarded contract to R. J. and W. N. Boyd Construction Co., Kansas City, Mo., to pave 3d and Main Sts. with asphaltic concrete.

Md., Upper Marlboro.—Prince George's County Commissioners will petition Legislature for authority to issue \$100,000 of bonds for construction of roads. Address County Commissioners.

N. C., Clinton.—Sampson county voted \$50,000 bond issue for road construction. Address County Commissioners.

N. C., Fayetteville.—Cumberland county will vote on \$200,000 bond issue for road construction. Address County Commissioners.

N. C., Newton.—Catawba county will vote in January or February on \$50,000 bond issue for road construction. Address County Commissioners.

N. C., Sanford.—Lee county will vote January 16 on \$100,000 bond issue for road construction; J. J. Edwards, chairman County Commissioners.

Okla., Guthrie.—Logan county will vote early in 1912 on bond issue for construction of proposed interstate postal highway across county. Address County Commissioners.

S. C., Fort Mill.—City voted \$4000 bond issue for paving Main St. Address The Mayor. (Recently mentioned.)

Tenn., Binghamton.—City will open bids about January 1 for street paving recently mentioned; grading, graveling, gutters, curbing and sidewalks; \$15,000 available; H. N. Pharr, Memphis, Tenn., engineer in charge. (See "Machinery Wanted.")

Tenn., Brownsville.—City will grade and gravel certain streets; bids received until December 27; R. N. Bond, chairman Street Commission. (See "Machinery Wanted.")

Tenn., Gallatin.—Sumner county voted \$200,000 bond issue for road construction. Address County Commissioners. (Recently mentioned.)

Tenn., Galesboro.—Jackson County Court will (at January term) elect five good-roads committees, who will have charge of road-building, for which \$150,000 bond issue was recently reported voted; W. M. Gallbreath, secretary of good-roads committee.

Tenn., Johnson City.—City will construct 5000 square yards of street paving in Improvement District No. 9, including necessary bridges, sewers, storm-water drains,

etc.; bids received until February 1; P. F. McDonald, City Commissioner; W. R. Ponder, Recorder. (See "Machinery Wanted.")

Tex., Bryan.—Brazos county will vote February 8 on \$200,000 bond issue for road and bridge construction. Address County Commissioners.

Tex., Dallas.—City awarded contract to J. A. Gregory at \$4475.91 to pave Jackson St. from Jefferson to Houston St.

Tex., Fort Worth.—Tarrant county voted \$1,000,000 bond issue for road construction. Address County Commissioners. (Recently mentioned.)

Tex., Hillshire.—City will pave public square. Address The Mayor.

Tex., Meridian.—Bosque County Road District No. 7 voted \$40,000 bond issue for road construction. Address District Commissioners.

Tex., Orange.—City will arrange for proposed street paving; about \$16,000 available; bond issue previously voted; E. W. Brown, Mayor.

Tex., Paris.—City will advertise for bids for paving North Main and Washington Sts.; material to be used not determined; bids will be received on brick, bitulithic, Ardmore asphalt and other bitulithic material; E. H. McCulston, Mayor. (Recently noted.)

Tex., Rusk.—Cherokee county will vote January 6 on issuance of \$50,000 road bonds. Address County Commissioners.

Tex., Sherman.—Grayson county voted \$400,000 bond issue for road construction. Address County Commissioners.

Va., Lynchburg.—Board of Aldermen adopted ordinance providing for \$550,000 bond issue for street improvement and sewer construction; Harry L. Shaner, City Engineer. (Amount reduced from \$650,000, lately stated, authorized by Common Council; \$100,000 not authorized was to be for bridge over James River.)

Va., Norfolk.—Lewis Lawson of Norfolk is lowest bidder for street improvements in Lockhaven, suburb of Norfolk; improvements include tarvia roadbed, granolithic curb and sidewalk; A. C. Freeman of Norfolk is consulting engineer.

Va., Norfolk.—Finance committee approved appropriation of \$11,657 for extending Church St. paving from Goff St. to Norfolk & Western Railway tracks, distance of several squares; Belgian blocks removed from lower Church St., where wood blocks will be laid; W. T. Brooke, City Engineer.

## SEWER CONSTRUCTION

Ala., Mobile.—City will construct 22,000 feet terra-cotta and concrete storm sewers, 6 inches to 6 feet in diameter; bids received until January 5; Wright Smith, City Engineer. (See "Machinery Wanted.")

Ala., Union Springs.—City will construct sanitary sewer system and disposal plant; bids received until January 4; Wilburn Hill, engineer, Attala, Ala.; bond issue of \$30,000 recently reported voted. (See "Machinery Wanted.")

Ark., Russellville.—City contemplates issuance of sewer bonds. Address The Mayor.

Fla., Fort Pierce.—City voted \$30,000 bond issue for construction of sewer system; R. Whyte, Mayor. (Recently mentioned.)

Fla., Fort Pierce.—City voted \$30,000 bond issue for sewer construction, electric-light plant and water-works; R. Whyte, Mayor. (Recently noted to vote \$30,000 for sewers.)

Fla., St. Augustine.—City defeated \$100,000 bond issue for construction of sewer system. Address The Mayor. (Recently mentioned.)

Ga., Douglas.—City voted \$10,000 bond issue for sewer construction. Address The Mayor.

Ga., McDonough.—City voted \$18,000 bond issue for construction of sewer system. A. M. Stewart, Mayor. (Recently mentioned.)

Mo., Grandview.—J. E. Fred is interested, it is reported, in construction of sewer system.

N. C., Kinston.—Dr. Ira M. Hardy, secretary of North Carolina School for Feeble-Minded, will construct sewer system and water-works at cost of \$7000. (See "Schools.")

Okla., Muskogee.—City will construct brick and two-inch vitrified tile pipe sewers in Sanitary Sewer District No. 74; bids opened December 19; I. B. Clonts, City Engineer.

Okla., Pryor Creek.—City has postponed date of letting contract for sewer pipe; Benham Engineering Co., 812 American National Bank Bldg., Oklahoma City, Okla. (Recently noted to receive bids about November 15.)

Okla., Oklahoma City.—City awarded contract to S. P. Bennett at \$17,709 to erect building for electrolytic sewer disposal plant,

and to J. A. McMahon at \$28,873 to furnish machinery.

Tex., Celina.—City voted \$8000 bond issue for sewer construction. Address The Mayor. (Recently mentioned.)

Tex., Clarksville.—City voted \$25,000 bond issue for construction of sewer system; John R. Webb, City Clerk. (Recently mentioned.)

Tex., Dallas.—City Commissioners invite bids for construction of 6-inch sanitary sewer on Bryan St. from Texas & Pacific Railroad to St. Joseph St.; J. B. Winslett, City Secretary.

Va., Lynchburg.—Board of Aldermen adopted ordinance providing for \$550,000 bond issue for sewer construction and street improvements; Harry L. Shaner, City Engineer. (See "Road and Street Work.")

## TELEPHONE SYSTEMS

Ga., Savannah.—Southern Bell Telephone & Telegraph Co., W. T. Gentry, president, 78 S. Pryor St., Atlanta, Ga., has not matured definite plans for additional buildings or extension to present buildings in Savannah. (Recently noted.)

Ky., Hartford.—Hartford Telephone Co. incorporated with \$10,000 capital stock by William W. Crawford, 2015 Longest Ave.; J. Joseph Hettlinger, 740 Brent St., and William T. Hale, 807 Rubel Ave., all of Louisville, Ky.; is holding company for former Hartford Telephone Co.; will operate and probably extend telephone system.

Mo., Maysville.—De Kalb County Telephone Co. incorporated with \$25,000 capital stock by W. H. Clay, E. A. Hofstatter and R. A. Payne.

Mo., Springfield.—Ozark Bell Telephone Co. awarded contract, it is reported, to Frank W. Hunt to erect telephone exchange; three stories; fireproof; reinforced concrete; cost \$55,000. (Recently mentioned.)

Okla., Parkman.—Parkman Telephone Co. incorporated with \$5000 capital stock by Thomas H. Burton, Frank R. Clark, C. H. Kratz and W. M. Davis.

S. C., McConellsville.—McConellsville Telephone Co. increased capital stock from \$500 to \$1200.

Tenn., Rosemark.—Rosemark Telephone Co. incorporated with \$2000 capital stock by E. A. Thompson, J. T. Cragg, W. R. McCalla, H. F. McQuiston and others.

Tex., Denison.—Southwestern Telephone & Telegraph Co., Dallas, Tex., will reconstruct telephone line; no bids asked. Franchise recently noted granted.)

Tex., Houston Heights.—Sanguinet, Staats & Barnes, architects, Houston, Tex., will receive bids until noon December 27 to erect proposed two-story fireproof building for Southwestern Telephone & Telegraph Co., main offices, Dallas, Tex.; separate bids received for plumbing, heating and wiring; certified check for \$250 to accompany each bid for general construction, and check for 10 per cent. of bid to accompany bids for plumbing, heating and wiring; plans and specifications on file with architect.

## TEXTILE MILLS

Ga., Tallapoosa.—Chain Warps, etc.—Tallapoosa Mills will add 2000 spindles, not 2500, as lately stated; awarded contract for new machinery.

Miss., Meridian.—Cotton Goods.—Lauderdale Cotton Mills incorporated with \$120,000 capital stock by I. Marks, H. M. Threefoot, E. S. Bostwick and others; succeeds Meridian Cotton Mills.

N. C., Charlotte.—Fancy Goods.—Company will organize with \$500,000 capital stock to build mill of 25,000 spindles, 500 looms, etc.; product, fine fancy goods; president, A. B. Lincoln of Fall River, Mass.; secretary, treasurer and engineer-architect in charge, O. A. Robbins of Charlotte; superintendent, C. B. Skipper of Lancaster, S. C.; New England investors largely interested.

Tex., Post City.—Sheeting.—C. W. Post of Battle Creek, Mich., will build 10,000-spindle and 200-loom mill costing about \$400,000; erect 125x500-foot main building, planned for future enlargement; handle cotton from unginned staple to finished sheeting, cut, hemmed, bleached and laundered; annual output, 2,000,000 yards; H. W. Fairbanks of Post City in charge of construction and operation.

## WATER-POWER DEVELOPMENTS

Tenn., Nashville.—F. H. Yost, general manager Great Falls Power Co., states final plans are not decided as to recently-noted development of Great Falls of Caney Fork River; surveys are being made to determine kind of development and field to be served.

## WATER-WORKS

Ala., Chatom.—Washington county will erect steel tower and tank, install 12-horsepower steam boiler with 4-horsepower engine, build brick boiler-house, etc.; bids received at January meeting; D. J. Long, Judge of Probate. (See "Machinery Wanted.")

Ala., Montgomery.—City Commission authorized expenditure of \$30,000 for improvements to water-works, including \$15,500 for 3000-cubic foot air compressor, electrically operated; other changes will embrace readjusting and re-piping of 18 wells now in use after competitive test between two air lift companies already engaged.

Fla., Fort Pierce.—City voted \$45,000 bond issue for construction of water-works; R. Whyte, Mayor. (Recently mentioned.)

Fla., Fort Pierce.—City voted \$80,000 bond issue for water-works, sewer construction and electric-light plant; R. Whyte, Mayor. (Recently noted to vote \$45,000 for water-works.)

Ga., Bainbridge.—City voted \$10,000 bond issue for extension of water-works. Address The Mayor. (Recently mentioned.)

Ga., Douglas.—City voted \$15,000 bond issue for water-works and electric-light plant. Address The Mayor.

Ga., Douglas.—City voted \$15,000 bond issue for construction of water and electric-light systems. Address The Mayor.

Ga., Jesup.—City will construct water-works previously noted; bids received until December 22; Arthur Pew, engineer; separate bids will be received on materials. (See "Machinery Wanted.")

Ga., Macon.—W. P. Bullock, engineer, Kansas City, Mo., submitted report to Water Commission, W. H. Fetter, chairman, and recommends installation of electrical machinery; erection of power-house; laying of 20-inch supply pipe from pumping station to city, to be about 12,000 feet long; extension of mains into South and East Macon; laying of mains in other portions of city; placing of hydrants; construction of low-service reservoir on Fort Hill, etc. (Recently mentioned.)

Ga., McDonough.—City voted \$22,000 bond issue for water-works; A. M. Stewart, Mayor. (Recently mentioned.)

Ky., Benton.—Town will construct water-works. Address Town Trustees.

Md., Cumberland.—City awarded contract to Merrill Ruckgaber Company of New York at \$164,000 to construct water-works; eight miles 24-inch wood stave pipe, concrete dam in Bedford county, Pennsylvania, filter plant, distribution reservoir and 30 and 24-inch connecting mains in Cumberland; Jas. H. Fuertes, consulting engineer, 149 Nassau St., New York; George G. Young, Mayor. (Recently mentioned.)

Miss., Shubuta.—City defeated \$17,000 bond issue for construction of water-works without sewer system. Address The Mayor. (Recently mentioned.)

Mo., Grandview.—J. E. Fred is interested, it is reported, in construction of water-works.

Mo., Joplin.—Villa Heights Booster Club, L. L. Travis, president, has plans by Cook Gregory Engineering Co. of Joplin for water-works in Villa Heights; cost \$15,000 to \$20,000; erect tower and tank; tank elevated 100 feet and have capacity to supply 2000 people; install motor-driven pump to cost \$2000; date of opening bids not set. (Recently noted to petition city for franchise.)

N. C., Albemarle.—City receives bids until January 16 for constructing water-works previously noted; to include pumping station, clear-water basin, deep well, two motor-driven turbine pumps (750 g. p. m. each), switchboard, and one mile of pole line, tower and tank, and five miles of six to 10-inch pipe line; Gilbert C. White, Charlotte, N. C., engineer in charge; M. J. Harris, Mayor. (See "Machinery Wanted.")

N. C., Charlotte.—Board of Water Commissioners will advertise bids about January 1 for building 60,000-gallon reservoir; work involves about 60,000 cubic yards embankment and a concrete core wall; Gilbert C. White of Durham, N. C., and Charlotte, engineer. (This in connection with city water-works extension, previously progressively noted.)

N. C., Kinston.—Dr. Ira M. Hardy, secretary of North Carolina School for Feeble-Minded, will construct water-works and sewer system at cost of \$7000. (See "Schools.")

Okla., Holdenville.—City receives report of engineers on cost of proposed extension of water mains to Little River; report includes installation of electric plant with equipment to furnish city lights and pump water; plans



proposed provide that water be pumped from Little River into present city lake as settling tank, and from there into city; estimate calls for \$24,000 additional bond issue. Address The Mayor.

Okla., McAlester.—City voted 50,000 bond issue for construction of additional pipe line to Gaines Creek and additional water-works machinery. Address The Mayor. (Recently mentioned.)

Okla., Oklahoma City.—Chicago, Rock Island & Pacific Railway, J. B. Berry, chief engineer, Chicago, Ill., will construct steel tank at Oklahoma City roundhouse; dimensions 24x60 feet and height 60 feet; capacity 30,000 gallons; will drill deep well to supply tank.

Okla., Pryor Creek.—City has postponed date of letting contract for water-works material, including water hydrants, valves, pumps, boilers, etc.; construction supervised by Benham Engineering Co., 112 American National Bank Bldg., Oklahoma City, Okla. (Recently noted to let contracts about December 30.)

Tex., Brownwood.—City awarded contract for water-works improvements; (\$15,000 bond issue recently noted voted.)

Tex., Bardwell.—Lewis Water Co. organized; will drill well, erect windmill and tank and pipe water to residences and farms for domestic and irrigation purposes.

Tex., Calvert.—Calvert Water, Ice & Electric Light Co. secured new 50-year franchise and will expend \$14,000 in improvements to water and electric-light systems.

Tex., San Antonio.—San Antonio Water Supply Co. will petition City Council for new water franchise; proposes installing meters.

W. Va., Miller.—Baltimore & Ohio Railroad, F. L. Stuart, chief engineer, B. & O. Building, Charles and Baltimore Sts., Baltimore, Md., awarded contract to Huffman-Conklin Company, Columbus, O., at \$19,000 to construct water line.

### WOODWORKING PLANTS

Ala., Birmingham.—Doots, Sash, etc.—A. L. Fulenwider, W. A. Smith, Ross Smith, W. A. Hammond and others plan organization of \$50,000 company to build sash, door and blind factory.

Ark., Lepanto.—Boxes.—Wels Peterson Box Co., Cairo, Ill., will build box factory; purchased 100 acres cottonwood land in Point-set county; will construct railroad.

Ky., Louisville.—Table Slides.—Jefferson Woodworking Co., 13th St. and Grand Ave., will erect addition to plant for manufacturing table slides; brick and frame building; machinery, including 150-horse-power boiler and 90-horse-power engine, estimated to cost \$500; contract for furnishing boiler awarded.

Mo., Kansas City.—Billiard Tables.—Kansas City Billiard Table Co. will erect power-house and drykiln at 5218 E. 9th St.; cost \$450.

Mo., Little Rock (not a postoffice).—Staves, etc.—Arthur N. Dickson, Napton, Mo., contemplates establishment of plant to manufacture staves, handles, etc. (See "Lumber Manufacturing.")

N. C., Barium Springs.—Presbyterian Orphan's Home, Rev. W. T. Walker, superintendent, contemplates equipping small wood-working shop. (See "Machinery Wanted.")

N. C., Monroe.—Wagons.—Cotton States Wagon Co. will operate plant formerly occupied by Piedmont Buggy Co.; machinery purchased; officers not elected. (Recently reported incorporated with \$100,000 capital stock.)

N. C., Salisbury.—Buggies.—Cathy Buggy Co. chartered with \$20,000 capital stock by J. P. Cathy, H. P. Barron, C. V. Kenkel, R. J. Holmes and others.

N. C., Salisbury.—Furniture.—Grace Furniture Co. wires Manufacturers Record relative to plant reported burned: "Expect to rebuild; \$20,000 plant of brick and sprinklered."

Okla., Muskogee.—Vehicles, etc.—Stoppel & Miller, Dallas, Tex., will, it is reported, establish plant for manufacturing vehicles and farming implements.

Tenn., Maryville.—Mantels, etc.—G. N. Mize & Sons will rebuild mantel and school-desk plant and planing mill recently burned.

Tenn., Unionville.—Cumberland Cedar Pen-Cl Co. will establish pencil slab factory.

Tex., Huntsville.—Furniture, etc.—State will expend \$35,000 in rebuilding and equipping burned furniture and cabinet shops, wagon works and blacksmith shop at State Penitentiary; Oscar B. Colquitt, Governor. (See "Government and State Buildings.")

Va., Richmond.—Furniture, etc.—James

River Furniture & Mattress Co., John S. Liebert, president, awarded contract to E. J. Andrews, Richmond, to erect building; three stories; 44x59 feet; machinery purchased. (Recently noted.)

W. Va., Charleston.—Staves.—Courtney & Harwood Stave Co. chartered with \$25,000 capital stock; T. E. Courtney, president; H. H. Harwood, secretary; D. S. Courtney, treasurer; erect sawmill, stave mill and lumber camps; machinery mainly purchased.

### BURNED

Ala., Girard.—George Wilson's residence and stores at 511 Second Ave.; loss about \$6000.

Ala., DeArmanville.—W. P. Smith's saw and shingle mills.

Ark., Little Rock.—Thalheimer & Son's stable, loss on building \$20,000; A. Winder's stable, loss about \$5000; A. Sanders' residence at 913 W. 6th St.; Webb Flats at 7th and Arch Sts.

Ark., Little Rock.—Stables of B. S. Thalheimer and A. Winder; loss \$90,000.

Ark., Midland.—Midland Valley Railway Co.'s station and freighthouse, C. Kaighn, chief engineer, Muskogee, Okla.; Arkola Mercantile Co.'s warehouse; Mammoth Vein Coal Co.'s storeroom; estimated loss \$14,000.

Ark., Wilmot.—Wooten & Co.'s store; loss about \$16,000.

D. C., Washington.—Johnson Bros.' stable on Water St. near 12th St. S. W.; loss \$30,000.

Fla., Jacksonville.—Stables at Moncreiff Park, J. H. Young, custodian.

Fla., Havana.—Four stores owned by T. P. Stucky and E. A. Jackson.

Ga., Augusta.—Georgia-Carolina Fair Association's racing stables; loss \$10,000.

Ga., Chelsen.—Charles D. Harper's residence.

Ga., Hawkinsville.—Thompson Oil Mill Co.'s mill slightly injured by recently-reported fire; damage can be repaired.

Ga., Quitman.—Wellington Hotel on Walnut St.; loss \$50,000.

Ga., Macon.—Majestic Theater, owned by Melton & Dudley; loss \$4500.

Ga., Montrose.—Laurens Cotton Oil Co.'s cotton gin.

Ga., Rome.—Bowie Stove Co.'s plant; loss \$5000 to \$10,000.

Ky., Henderson.—Peter Geibel's store; Mann Bros.' stores; total loss about \$30,000.

Ga., Bowman.—T. S. Maxwell's cotton warehouse.

Ky., Cynthia.—Clarence Le Bus's warehouse; loss \$4000.

Ky., Louisville.—Royal Photo Co.'s office and laboratory at 325 W. Market St., owned by L. Bramson; loss about \$4500.

Mo., Smithburg.—Irving A. Fox's dwelling, barn and five outbuildings; loss several thousand dollars.

Ky., Crayne.—Arthur B. Jarvis' warehouse; loss \$7000.

Mo., Govans.—Herbert E. Young's residence on Eversham Ave. near York Rd., owned by Charles Golding, Lake and Belton Aves.

Miss., Hattiesburg.—A. Fisher's store; loss about \$4000.

Miss., Hattiesburg.—Stable on West Pine St., owned by Richard Thornton, Meridian, Miss.; loss \$6500.

Miss., Meridian.—Percy W. Scott's residence.

Miss., Seminary.—Conner Lumber Co.'s turpentine still; loss about \$2000.

Mo., Bland.—Bland Manufacturing Co. incorporated with \$2500 capital stock by T. M. Parker, William Lichte, L. F. Neese and others.

Mo., Hannibal.—Bluff City Telephone Co.'s telephone exchange; estimated loss, \$30,000.

Mo., Wellston, Station St. Louis.—Allhoff Bros.' warehouse at 6560 Easton Ave.; loss \$15,000.

N. C., Salisbury.—Grace Furniture Co.'s plant; loss about \$100,000.

N. C., Stanley.—Adam Hathcock's residence.

N. C., Burlington.—E. L. Morgan's warehouse; American Tobacco Co.'s storehouse, etc., loss \$25,000.

S. C., Jonesville.—T. E. Kerr's blacksmith and wood shop, corn mill, livery and sales stable; loss \$4000.

S. C., Wedgefield.—H. H. Aycock & Sons' barn and stables; loss \$10,000 to \$15,000.

Tenn., Copperhill.—Polk county jail. Address County Commissioners, Benton, Tenn.

Tenn., Greenville.—Greenville College; loss \$5000.

Tenn., Johnson City.—Sells Lumber & Manufacturing Co.'s plant; loss about \$7000.

Tenn., Maryville.—G. N. Mize & Son's planing mill and mantel and school-desk plant.

Tex., Overton.—International & Great Northern Railroad's passenger depot; O. H. Crittenden, chief engineer, Houston, Tex.

Tex., Cross Plains.—Buildings of Cash Grocery Co. and L. C. Thomas; loss \$12,700.

Tex., San Antonio.—J. D. Sewell's residence on Laurel Heights; loss \$5900.

Tex., San Antonio.—J. D. Sewell's residence on Laurel Heights Ter.; loss \$9000.

Va., Danville.—Boatwright Bros.' printing plant; Virginia Hardware Co.'s store; Main Street Restaurant; Waddill Printing Co.'s plant, owned by Henry Day; total loss about \$125,000.

Va., Damascus.—Thayer Lumber Co.'s plant, with exception of drykilns; loss \$100,000 to \$125,000.

Va., Phoebus.—American Theater; loss \$6000.

Va., Sugar Grove.—R. C. Hash & Co.'s sawmill; loss about \$3000.

Va., Toches, R. F. D. No. 2.—T. A. Bennett's residence and stable.

W. Va., Bluefield.—Stowers & Woolwine's store; loss \$5000.

W. Va., Baden.—William Blackburn's store; loss \$3500.

W. Va., Matewan.—Methodist Church, public school, commissary and office building of Marvin Coal Co. and Independent Order of Odd Fellows' hall; total loss about \$100,000.

W. Va., Beckley.—James R. Jordan's residence on Kanawha St.; loss more than \$5000; Richard Frasier's residence.

### DAMAGED BY STORM

S. C., Aiken.—Carolina Light & Power Co.'s plant; loss \$35,000 to \$40,000.

## BUILDING NEWS

### BUILDINGS PROPOSED

#### APARTMENT-HOUSES

Mo., Kansas City.—C. W. Lovitt will erect brick apartment-house at 1406 E. 37th St.; cost \$6000.

Mo., Kansas City.—Frederick Kassen will erect brick apartment-house at 2561 Holmes St.; cost \$5500.

Okla., Muskogee.—Muskogee Realty Co. will erect apartment-house at E St. and E. Broadway. (See "Stores.")

Tex., El Paso.—J. J. Crawford is having plans prepared for apartment-house at Mundy and Lawton Aves.; three stories; six apartments of three to five rooms each.

Tex., Waco.—Mrs. H. C. Slaughter will erect apartment-house; two stories; pressed brick; 16 rooms; 36x56 feet.

#### ASSOCIATION AND FRATERNAL

Fla., Tampa.—Bay Lodge, No. 12, Knights of Pythias, will ask for bids in a few days to erect lodge building; ordinary construction; tile roof; cost \$22,000; plans by Bonfoey & Elliott, Tampa. (Previously noted.)

Ky., Owensboro.—Ancient Free and Accepted Masons are reported as having plans prepared by James Rely Gordon, 507 Fifth Ave., New York, for lodge building; six stories; 80x90 feet.

La., Grand Cane.—Dick Taylor Chapter of United Daughters of the Confederacy will erect chapter-house.

La., Hammond.—Independent Order of Odd Fellows and Knights of Pythias lodges will erect fraternal building.

Miss., Biloxi.—Benevolent Protective Order of Elks will have plans for lodge building modified and resubmit same to following, who are three lowest bidders, to erect structure: T. J. Rosell Manufacturing Co., Biloxi, and contractors Moore and Depree, both of Mobile, Ala.; cost about \$20,000; plans by Stone Bros., 201 Pollock Bldg., Mobile, Ala. (Previously noted.)

Mo., Kansas City.—Ivanhoe Lodge, No. 446, Ancient Free and Accepted Masons, J. O. Christensen, worshipful master, will erect temple; cost \$100,000.

Tex., Fort Worth.—Fraternal Order of Eagles will erect lodge building; cost about \$50,000.

Tex., Dallas.—Dallas Lodge No. 424, Loyal Order of Moose, W. I. Cole, past dictator, will erect \$60,000 lodge building.

Va., Richmond.—Young Women's Christian Association raised fund of \$150,000 and appointed Henry W. Wood, W. S. Rhoads, Thomas Pinkney Bryan and others a committee to erect building. (Recently noted.)

#### BANK AND OFFICE

D. C., Washington.—A. & E. E. Reeside, proprietors of Southern Dental Supply Co., 618 12th St. N. W., purchased site at 1225 New York Ave. N. W. and will erect office building for dentists; three stories.

Fla., Jacksonville.—Florida Fire & Casualty Insurance Co., temporary office, 205 Duval Bldg., contemplates erecting office building; plans not made.

Fla., Jacksonville.—William M. Fields, Jr., Deland, Fla., purchased site on Forsyth St., 30x165 feet; will erect building of at least five stories; for hotel or offices.

Ga., Atlanta.—Charles P. Glover will remodel building at 40 Peachtree St. for real estate agency.

La., Roseland.—Roseland Bank plans to erect bank building.

Md., Baltimore.—Robert Garrett & Son, 506 Continental Bldg., purchased site at South and German Sts., 53x100 feet, and will erect building; details not determined.

Md., Baltimore.—Spedden Shipbuilding Co., Boston and Kenwood Ave., will erect stores, office and warehouse building; Piel Construction Co., 241 Arunah Ave., Baltimore, is lowest bidder. (See "Stores.")

Miss., Hattiesburg.—D. E. McInnis has plans for office and store building; 30x100 feet; ordinary construction. (See "Stores.")

Mo., Springfield.—Walter Hendrickson is reported as having plans prepared for office and store building; six stories.

Okla., Muskogee.—Muskogee Realty Co. will erect store and office building. (See "Stores.")

Okla., Muskogee.—Earl Wright will erect building to be occupied in part as terminal station for electric railway; upper floors rented by owner. (See "Railway Stations.")

S. C., Greenville.—W. B. Harrison will erect store and office building. (See "Stores.")

S. C., Winnsboro.—Bank of Fairfield will erect building to replace burned structure. (Recently reported burned.)

Tenn., Lexington.—Bank of Lexington will erect bank and office building to replace burned structure; two stories; fireproof; brick; stone columns and steps; marble interior finish; tile floor.

Tex., Dallas.—J. Ashford Hughes is having plans prepared by Lang & Witchell, Dallas, for professional office building; 12 stories; steel frame; fireproof; glazed terra-cotta and enameled brick; amphitheater style clinic-room on twelfth floor; high-speed traction elevator; basement equipped with power plant and mechanical apparatus; Turkish baths, etc.

### CHURCHES

Ala., Cloverdale.—Central Presbyterian Church, Rev. J. W. Nelson, pastor, is receiving bids to erect edifice.

Ala., Montgomery.—Central Presbyterian Church will let contract about January 1 to erect edifice; plans by Frank Lockwood, Montgomery. (Recently noted.)

Ga., Atlanta.—Druid Hills Methodist Church, Rev. S. E. Wasson, pastor, will soon open bids to erect edifice; stone and brick; steam heat; electric lighting; cost \$40,000; plans by A. F. N. Everett, Atlanta. (Recently noted.)

Ky., Paducah.—First Baptist congregation raised fund of \$43,558 to erect edifice. Address The Pastor, First Baptist Church.

La., Baton Rouge.—First Christian Church Rev. John A. Stevens, pastor, 753 St. Charles St., will probably let contracts to erect edifice; 68x45 feet; brick veneer; gas and steam heat; electric lighting; cost \$6000; plans by C. H. Charlton, Baton Rouge; no general contract. (Recently noted.)

Mo., Kansas City.—Presbyterian church, W. R. Lampton, elder, will not at present erect edifice. (Recently noted.)

Tex., Corpus Christi.—Methodist congregation is planning to erect edifice; cost about \$40,000. Address The Pastor, Methodist Church.

N. C., Waxhaw.—Methodist Church will erect edifice about four miles from Waxhaw;

Rev. C. F. Sherrill will have charge of construction.

N. C., Asheville.—Haywood Street Methodist Church, Rev. W. A. Newell, pastor, will expend several thousand dollars to remodel edifice and erect Sunday-school room in rear; tentative plans provide for new front, improvements to interior, etc.

N. C., Lexington.—First Reformed Church will erect Sunday-school building on Center St.

S. C., Dillon.—Main St. Methodist Church, Rev. A. N. Brunson, pastor, will let contract during winter to erect edifice; 96x138 feet; ordinary construction; heating plant to cost \$1000 to \$1500; cost of structure \$35,000; plans by Wheeler & Stern, Charlotte, N. C. (Recently noted.)

Tex., Mineral Wells.—Park Street Baptist Church has plans by Harry Leinboch, Mineral Wells, for edifice; brick; cost \$3500.

Tex., Mineral Wells.—Missionary Baptist Church will erect edifice; brick; cost \$3500. Address The Pastor, Missionary Baptist Church.

Tex., Navasota.—Methodist congregation contemplates erection of edifice. Address The Pastor, Methodist Church.

Tex., Rouston.—Methodist congregation will erect edifice; cost \$10,000; will also erect parsonage. Address The Pastor, Methodist Church.

Tex., Temple.—First Methodist Church is having plans prepared by Sanguinette & Staats, Dallas and Fort Worth, Tex., for edifice to replace burned structure; cost \$75,000. (Recently noted.)

W. Va., Charleston.—Greek congregation, Rev. Father Toaf, pastor, plans to erect edifice.

### CITY AND COUNTY

D. C., Washington.—Police Stations.—District Commissioners will receive bids until December 29 for alterations and cell work at police precinct stations Nos. 1, 4, 6 and 8; forms of proposals, specifications and necessary information from chief clerk, Engineer Department, Room 427 District Bldg.

Fla., Palm Beach.—City Hall, etc.—City will erect city hall and council chamber. Address The Mayor.

Ga., Bainbridge.—City Hall and Hospital.—City voted \$15,000 bond issue to erect city hall, but defeated \$20,000 bond issue for hospital. Address The Mayor. (Recently noted.)

Ga., Quitman.—Fire Department.—City will vote January 16 on \$4000 bond issue for improvements to fire department. Address The Mayor. (Recently noted to vote on \$12,000, but this amount reduced.)

Tenn., Chattanooga.—Jail.—Hamilton County Jail and Courthouse Commission will receive bids until February 1 to erect jail; plans by Barnwell & Jones, Chattanooga. (Recently noted.)

Tex., Galveston.—Building and Fence.—City Commissioners will receive bids until noon December 23 to erect building covered with corrugated galvanized iron and fence 180 feet long of corrugated galvanized iron on 35th St., near Avenue C; work to be done in accordance with specifications prepared by A. T. Dickey, City Engineer, and on file at his office; certified check for \$25; V. E. Austin, Commissioner of Streets and Public Property; John D. Kelley, City Secretary.

Tex., New Caney.—Jail.—City will erect jail. Address The Mayor.

Va., Portsmouth.—Municipal.—Public Property Committee will probably advertise about first of year for bids to be received by February 1 to erect municipal building; fireproof; steel and concrete; heating plant; certified check for \$500; plans on deposit of certified check; concrete work to begin about March 10; plans by B. F. Smith, 817 14th St. N. W., Washington, D. C. (Recently noted.)

### DWELLINGS

Ala., Bessemer.—J. T. Crofford will erect residence; cost \$3000.

Ark., Little Rock.—Frank Helmeyer will erect residence at 2322 Battery St.; cost \$7000.

D. C., Washington.—Dr. J. J. Richardson, 1016 14th St. N. W., has plans by Remy & Co., 1529 New Hampshire Ave. N. W., Washington, for residence and garage on Massachusetts Avenue Heights; cost \$60,000.

D. C., Washington.—Allard & Appleby, 707 G St. N. W., will erect dwellings at 2 to 14 Girard St. N. W.; cost \$23,000.

D. C., Washington.—D. B. Sterrett, Pierce Mill Rd. N. W., will erect dwelling on Reno Rd., near Rodman St. N. W.; cost \$4600.

D. C., Washington.—Harry Wardman, 1342 New York Ave. N. W., will erect dwellings at 140-180 U St. N. E.; cost \$40,000.

D. C., Washington.—Harry Wardman, 1342 New York Ave. N. W., will erect 110 to 135 six-room dwellings; location not determined.

D. C., Washington.—H. A. Kite, 1338 G St. N. W., will expend \$2500 each to erect 25 dwellings; 20x40 feet; two stories; hot-air heat; gas lighting; plans and construction by owner. (Recently noted.)

Fla., Bartow.—Mrs. W. B. Swearingen is having plans prepared by Bonfoey & Elliott, Tampa, for residence; frame; mahogany interior finish; cost \$20,000.

Fla., Bartow.—Mrs. W. B. Swearingen has plans by Bonfoey & Elliott, Tampa, for proposed \$20,000 residence.

Fla., Jacksonville.—J. H. Blodgett will erect two-story frame dwelling.

Fla., Jacksonville.—Katie Bandel, 812 W. Monroe St., will erect store and dwelling; two stories; brick; fireproof; fireplaces; lighting to cost \$250; cement sidewalks; cost of building, \$8000; architect not selected; bids opened about January 1. Address proposals to Frank Bandel, 629 W. Bay St. (Recently noted.)

Fla., Jacksonville.—Sampson Campbell will erect dwelling at Durkee Ave. and E St.; two stories; frame.

Fla., Jacksonville.—Freedman's Aid Society will erect dwelling; two stories; concrete and frame.

Ga., Atlanta.—William Hartsock Company will erect two residences at 43 Candler St. and 280 N. Moreland Ave.; cost \$2850 and \$3250, respectively.

Ga., Atlanta.—W. G. Black will erect residence.

Ga., Atlanta.—J. H. Kempton will erect residence.

Ga., Atlanta.—J. B. Chamblee will erect residence; eight rooms.

Fla., Jacksonville.—C. A. Brown, Jr., will erect two dwellings; two stories.

Fla., Buena Vista.—R. B. Fickle will erect residence; two stories; stone; plans by August Geiger of Miami, Fla.

Fla., Miami.—J. L. Burre of Leavenworth, Kans., will erect residence at Avocado Bluff.

Ga., Atlanta.—Paul Knuckles will erect two dwellings on Morgan St.; cost \$3500.

Ga., Atlanta.—Fulton County Home Builders will erect residence at 1221 Peachtree St.; cost \$15,000.

La., New Orleans.—A. Chalona will erect single frame cottage; cost \$6300.

La., New Orleans.—Dr. A. B. Gaudet will erect residence and garage; two stories; tile roof; cost \$4500.

La., New Orleans.—A. Altmont will erect residence; two stories; slate roof; cost \$3000.

Md., Baltimore.—John J. Carlin, 215 St. Paul St., is having plans prepared by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for eight dwellings on Shirley Ave., between Cottage and Greenspring Aves.; two stories; iron-spot brick; 24x36 feet; cost \$17,600.

Md., Baltimore.—Abell Building Co. has plans by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for five two-story brick dwellings on Barclay St., near 31st St.; 16x56 feet; Carey roofing; galvanized-iron cornices; cost \$12,000.

Md., Baltimore.—Rochester-Kirkness Realty Co., Lombard and Elmwood Sts., will erect 29 dwellings on Pratt St. between Patuxent and Elmwood Sts.; two stories; brick with marble trimmings; 14x44 feet; cost \$30,000; plans by Callis & Callis, 2000 St. Paul St., Baltimore; construction by owners.

Md., Baltimore.—T. A. Poehlman, 942 Frederick Rd. Ext., will erect dwelling; 60x70 feet; frame; stucco finish; hot-water heat; electric lighting; cost \$7000; plans and construction by owner. (See "Machinery Wanted.")

Md., Baltimore.—A. Poehlman has plans by F. Hans Kubitz, 2701 W. North Ave., Baltimore, for bungalow on Eden Ter.; one story; frame and stucco; tile roof.

Md., Mt. Washington.—T. W. Justus, 4500 Main Ave., Baltimore, Md., has plans by Henry J. Tinley, 312 N. Charles St., Baltimore, Md., for dwelling; two and a half stories; frame and stucco construction; slate roof; cost \$4500.

Md., Relay.—Robert A. Dobbin, 92 Mosher St., Baltimore, Md., will erect residence on Lawyer's Hill.

Md., Ruxton.—Ernest D. Levering, 210 Hughes Ave., Baltimore, will erect dwelling and stable; stone; vapor or hot-water heat; electric lighting. (See "Machinery Wanted.")

Mo., Kansas City.—Roger Davis, 1321 Commerce Bldg., contemplates erecting residence. (Recently noted.)

Mo., St. Louis.—Barthkirts Building & Investment Co. will erect four one-story dwellings at 4611-15-17-21 Morgan Ford; cost \$8000.

Mo., St. Louis.—Samoto Real Estate & Building Co. will erect two dwellings at 4344-48 Itaska St.; two stories; cost \$4000.

Md., Ruxton.—Dr. Frank Dyer Singer, 525 N. Charles St., Baltimore, Md., will erect residence.

Mo., St. Louis.—Attille Real Estate Co. will erect four two-story dwellings at 4411-19-25-31 Ellenwood Ave.; cost \$8000.

N. C., Maxton.—Presbyterian Church will erect manse. Address The Pastor.

N. C., Salisbury.—J. H. Wooley purchased residence on Fulton St. and will expend \$5000 for improvements.

Okla., Oklahoma City.—C. B. Cook will erect dwelling; frame; cost \$4000.

Okla., Tulsa.—J. W. Bozarth will erect residence in Stonebreaker Heights; cost \$4000.

Okla., Tulsa.—I. F. Crow will erect residence at 17th St. and Boulder Ave.; cost \$5000.

S. C., Columbia.—Thomas H. Hegarty, 1530 Assembly St., is having plans prepared by James Urquhart, Loan and Exchange Bank Bldg., Columbia, for Catholic rectory; two stories; cost \$7000; date of opening bids not set. (St. Peter's Catholic Church recently noted to erect dwelling.)

Tenn., Nashville.—Mrs. M. A. Montgomery is having plans prepared by Fletcher & Billis, Nashville, for residence; two stories; stucco; red tile roof; cost \$12,000.

Tenn., Nashville.—Dr. Fitzwater is having plans prepared by Fletcher & Billis, Nashville, for bungalow; native stone; slate roof; cost \$4000.

Tenn., Nashville.—Mr. Huttenstein is having plans prepared by Fletcher & Billis, Nashville, for bungalow; red brick; slate roof; cost \$5000.

Tenn., Pulaski.—E. C. Cunningham is having plans prepared by Fletcher & Billis, Nashville, Tenn., for bungalow; native stone; cost \$4000.

Tex., Caldwell.—T. J. Olive will erect residence.

Tex., Dallas.—J. Edgar Finley will erect residence at 5010 Junius St.; brick veneer; cost \$6500.

Tex., Dallas.—W. H. Goodnight will erect residence at 823 W. 8th St.; cost \$3000.

Tex., Dallas.—Mrs. K. J. Hervey will erect four cottages at 806-10-12 Kentucky St.; cost \$5000.

Tex., Houston.—A. Feldman will erect two dwellings on Gray Ave.; cost \$3000.

Tex., Houston.—W. D. Clapp will erect four dwellings on Chapman St.; cost \$4400.

Tex., Mason.—H. L. Weber contemplates erecting several residences.

Tex., Rouston.—Methodist congregation will erect parsonage. Address The Pastor, Methodist Church. (See "Churches.")

Tex., Waco.—H. G. Bostwick will erect residence; eight rooms; frame and veneer; cost \$9000.

Va., Richmond.—Slaughter & Perrin, 28 N. 9th St., Richmond, are lowest bidders at \$11,310 to erect residence at Ginter Park; plans by B. W. Poindexter, Richmond; plans will probably be revised and new bids invited. (Recently noted.)

Va., Roanoke.—T. S. Davant will erect dwelling on Clark Ave.; two stories; brick-cased; cost \$3000.

Va., Roanoke.—A. A. Slusher and J. C. Burns will erect dwelling on Eleventh Ave. S. W.; two stories; brick-cased; cost \$3000.

W. Va., Point Pleasant.—G. W. M. Hooff will erect dwelling and garage. (See "Motors and Garages.")

W. Va., Wheeling.—A. E. May has plans for erection of residence on Maple Ave., Woodlawn; frame; cost \$10,000.

### GOVERNMENT AND STATE

Ala., Cullman.—Federal Building.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., will erect Federal building at reported cost of \$75,000.

Ga., Augusta.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., will probably soon begin erection of proposed \$250,000 post-office building.

Mo., Jefferson City.—Capitol.—State Capitol Commission, F. W. Stephens, chairman, Columbia, Mo., selected L. Baylor Pendleton, Central National Bank Bldg., St. Louis, Mo., as advisory architect for architectural contest for State Capitol building; three stories; about 500x150 feet; granite or limestone construction; cost \$3,500,000. (Previously noted.)

Tenn., Union City.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., opened

bids to erect postoffice building; George W. Stiles Construction Co., Chicago, Ill., is lowest bidder for limestone construction at \$39,885; brick facings; stone trimmings. (Previously noted.)

Tex., Huntsville.—Penitentiary.—Board of Prison Commissioners, Louis W. Tittle, finance commissioner, has not definitely arranged plans for rebuilding factories and other buildings at State Penitentiary. (Recently noted.)

Tex., Huntsville.—Penitentiary.—State will immediately rebuild and equip (on smaller scale) furniture shop, cabinet shop, wagon works and blacksmith shop at State Penitentiary; cost about \$35,000; will defer rebuilding other burned structures until meeting of next Legislature; total loss less than \$150,000; Oscar B. Colquitt, Governor. (Recently noted.)

W. Va., Huntington.—Armory.—State, William E. Glascock, Governor, will lease \$25,000 armory building to be erected by George N. Biggs.

### HOTELS

Fla., Jacksonville.—William M. Fields, Jr., will erect hotel or office building. (See "Bank and Office.")

Fla., Tarpon Springs.—Tarpon Springs Co. (Charles H. Brown and John Cheney) will expend \$50,000 to erect hotel; 96x92 feet; 50 rooms; brick walls; tile roof; steam heat; electric lighting; electric elevator; plans by Bonfoey & Elliott, Tampa, Fla.; date of opening bids not set; architects may be addressed. (Recently noted.)

Ga., Augusta.—Wheeler Heights Company, P. A. Steiner of Alexander & Steiner, president, selected committee composed of L. A. Berckmans, Fielding Wallace and Thomas W. Loyless to employ supervising architect and landscape engineer for two-year term to lay out and plat property for proposed development, design buildings for clubhouse and hotel, said architect to have charge of entire development from beginning, under supervision and control of directors. (See "Land Development." Lately noted.)

La., New Iberia.—Southwestern Traction & Power Co., F. W. Crosby, president, New Orleans, La., plans to establish resort on Spanish Lake, erect hotel and make other improvements.

N. C., Asheville.—Dr. E. W. Grove of Paris Medicine Co., St. Louis, Mo., announces that he is ready to proceed with erection of hotel on side of Sunset Mountain; cost \$250,000. (Recently noted.)

Tex., Brownsville.—Chamber of Commerce is reported as interested in erection of tourist hotel.

Tex., Palestine.—George W. Burkitt, Houston, Tex., is having plans prepared for improvements to Lindell Hotel.

Tex., Temple.—Albert Schulte will erect hotel to replace burned Commercial Hotel; three stories; brick; 70 rooms. (Recently reported burned.)

Tex., Waxahachie.—Commercial Club is promoting erection of hotel; reinforced concrete; fireproof; cost \$100,000.

### MISCELLANEOUS

D. C., Washington.—Restaurant.—Miller Bros., 502 9th St. N. W., purchased building at 419-21 9th St. N. W. for \$50,000 and will remodel.

D. C., Washington.—Hospital.—Sibley Hospital, N. Capitol and Pierce Sts., has plans by William J. Palmer, Warden Bldg., Washington, for hospital building; six stories; 56x136 feet; pressed brick and stone; fireproof; six massive Doric columns around main entrance; porte cochere to extend to sidewalk; hardwood interior finishings; on west side of each story will be screened balconies 126x12 feet, which may be converted into sleeping apartments; diet kitchen on each floor connected with main kitchen by electric elevator; roof garden of about 7000 square feet; cost about \$125,000; present lighting plant will be enlarged; hot-water heat; electric passenger elevator and several dumbwaiters, including one electric dumbwaiter; composition floors; additions to power plant, laundry, etc.; plans ready early in January. (Previously noted.)

Fla., Jacksonville.—Car Barns.—Jacksonville Traction Co. will expend \$40,000 for proposed improvements to car barns and offices; will extend offices 30 feet on Riverside Ave., bringing walls of workshop to street line; addition to be wedge shaped, 118x15 feet at broadest end; will also extend stock and paint rooms 60 feet along street line and make same 27 feet broader; brick; one story; will erect addition to car barn 46½x45 feet; tracks supplied with pits to permit repair of cars from underneath; con-



struction begun under direction of Stone & Webster Engineering Corporation, Boston, Mass.; completion by February 15; cost \$40,000.

Fla., Ocala.—Hospital.—Marion County Hospital trustees accepted plans for proposed hospital.

Ga., Augusta.—Clubhouse.—Wheeler Heights Company, P. A. Steiner, president, appointed committee to select supervising architect and landscape engineer for proposed development to design clubhouse, hotel, etc. (See "Hotels.")

Ky., Louisville.—Clubhouse.—Louisville Boat Club purchased site of about 12 acres for location of permanent clubhouse; will remodel dwelling on property for temporary clubhouse and later erect permanent structure; will expend several thousand dollars during winter and spring to improve ground; has laid out five tennis courts; will provide docking facilities, including construction of landing floats, marine railway, dressing-rooms for bathers, etc.; will construct road from rear of present structure to car line, flanked on either side with lots laid out for erection of bungalows; cost of improvements, \$5000.

La., Monroe.—Sanitarium.—Franciscan Sisters, 318 Catalpa St., have selected Sanguinet & Stants and A. E. Barnes, First National Bank Bldg., Houston, Tex., to prepare plans for sanitarium; plans will not be completed for some time. (Recently noted.)

La., New Orleans.—Hospital.—Charity Hospital will erect extension; three stories; brick; cost \$32,000.

La., New Orleans.—Home.—Sisters of the Good Shepherd will erect addition to Girls' Home at Dorgenois, Conti, Bienville and Broad Sts.; three stories; brick; cost \$57,000.

Md., Easton.—Hospital.—Emergency Hospital, Mary Stuart Jump, secretary, plans to erect hospital building.

Miss., Jackson.—Sanitarium.—Mississippi Baptist Hospital, Rev. P. I. Lipsey, chairman of committee, Clinton, Miss., has not selected architect to prepare plans and specifications for addition to sanitarium; cost \$35,000. (Recently noted.)

Mo., Joplin.—Convention Hall and Armory. It is proposed to erect combination armory and convention hall to be occupied by Joplin company of Missouri National Guard; plan is to erect structure of medieval castle type with turrets at each corner; lower floor 72x96 feet, without pillars and posts, surrounded by smaller rooms; roof supported by steel trusses, from which balconies will be suspended; seating capacity of lower floor, 2400; of balcony, 750; two stories; 100x120 feet; reinforced concrete; wood floors and balconies; heating not determined; cost \$25,000; plans by Garstang & Ren, Joplin; date of opening bids not set. Capt. Fred W. Manchester of Company F, Missouri National Guards, is interested.

Mo., Kansas City.—Clubhouse.—Kansas City Athenaeum, Mrs. Henry Ess, president, will increase capital stock to \$25,000 and plans to erect clubhouse to contain auditorium, classrooms, dining-room and kitchen; cost about \$40,000 to \$50,000.

S. C., Charleston.—Sanitarium.—Baker-Craig Sanitarium, A. E. Baker, president, will open bids January 15 to erect sanitarium; 70x125 feet; three stories and basement; pressed brick; terra-cotta trimmings; Spanish tile roof; plans by E. V. Richards, Bennettsville, S. C., and J. D. Newcomer, 32 Broad St., Charleston, S. C.; plans ready for bids December 20; separate bids invited on construction proper, plumbing, heating, electric work and painting. Address architects. (Recently noted.)

Tenn., Decherd.—Stable.—T. H. Maupin will erect stable.

Tenn., Memphis.—Clubhouse.—Memphis Athletic Club plans to erect clubhouse.

Tenn., Memphis.—Clubhouse.—Weathers-Foley Company (not Athletic Club, as recently noted) awarded contract to erect clubhouse; to be leased by Memphis Athletic Club; cost \$250,000; construction to begin January 1 and be completed by November 1, 1912; company will be incorporated to take over leases of Weathers-Foley Company and will also own building. (Previously described.)

Tex., Dallas.—Undertaking.—George W. Loudermilk will probably have plans prepared by Lang & Wittichell, Dallas, for building and chapel; will not erect for several months. (Recently noted.)

Tex., El Paso.—Clubhouse.—El Paso & Southwestern Railroad Co., H. J. Simmons, general manager, will expend \$3000 to remodel office building as clubhouse. (Recently noted to receive bids until December 10.)

Tex., San Antonio.—Grandstand, etc.—San

Antonio Baseball Club will construct baseball park, including 400-foot grandstand and bleachers, with combined seating capacity of 7000, ladies' restroom, etc.

Tex., Waco.—Transfer.—E. Rotan will erect building to be occupied by Waco Transfer Co.; 75x130 feet; 16-foot walls; will also remodel building now occupied by transfer company on S. 3d St. for business purposes.

W. Va., Huntington.—Armory.—George N. Biggs will erect armory building at Fifth Ave. and 1st St. to be leased by State; cost \$25,000.

### RAILWAY STATIONS

Ark., Piggott.—St. Louis Southwestern Railway, C. D. Purdon, chief engineer, Tyler, Tex., will erect depot.

Fla., Tampa.—Atlantic, Okeechobee & Gulf Railway, Hiram McElroy, chief engineer, purchased site to erect proposed freight station and sheds.

N. C., Paw Creek.—Piedmont Traction Co., Charlotte, N. C., will erect interurban station.

Okla., Elk City.—Chicago, Rock Island & Pacific Railway, J. B. Berry, chief engineer, Chicago, Ill., is considering erection of depot.

Okla., Holdenville.—St. Louis & San Francisco Railway, F. G. Jonah, chief engineer, St. Louis, Mo., and Chicago, Rock Island & Pacific Railway, J. B. Berry, chief engineer, Chicago, Ill., will erect union station; cost \$23,000.

Okla., Muskogee.—Earl Wright will erect building to erect in part as interurban station for People's Electric Railway Co.; station to be 100x120 feet; steel and concrete; fireproof; waiting-room, general offices and several small shops on first floor; upper floors rented by owner.

Tenn., Decherd.—Nashville, Chattanooga & St. Louis Railway Co., H. McDonald, chief engineer, Nashville, Tenn., will erect depot.

Tex., Paris.—St. Louis & San Francisco Railroad, F. G. Jonah, chief engineer, St. Louis, Mo., and Atchison, Topeka & Santa Fe Railroad, C. A. Morse, chief engineer, Topeka, Kans., will erect freight depot.

Tex., Laredo.—International & Great Northern Railroad, O. H. Crittenden, chief engineer, Houston, will soon begin erection of proposed passenger station; brick; cost about \$35,000; J. W. Thompson Company, St. Louis, Mo., engineer, has begun laying off site.

Tex., Overton.—International & Great Northern Railroad, O. H. Crittenden, chief engineer, Houston, Tex., will rebuild passenger station reported burned.

### SCHOOLS

Ark., Womble.—School Board, W. E. Womble, secretary, will rebuild school building recently reported burned; cost \$7000. (See "Machinery Wanted.")

Fla., De Funiak Springs.—Palmer College, Rev. Lynn R. Walker, president, contemplates improvements to college buildings; will erect additional dormitory, auditorium, install heating plant, etc.

Fla., Gainesville.—Dr. J. L. Kelley, superintendent of public instruction, will receive bids until 2 P. M. January 6 to erect two-story-and-basement brick University High School; certified check for \$500; plans and specifications from Willis R. Biggers, architect, Atlanta, Ga., and Tampa, Fla. (apply Tampa office); certified check for \$25 with application, drawn to architect; certified check for \$10 from heating, plumbing and subcontractors wishing plans and specifications; apply to W. L. Love, Atlanta office; E. L. Kilges, Tampa office, architect's representatives, for further information; plans call for 11 classrooms, each with individual cloakroom, lecture-room, superintendent's office and reception-rooms; two gymnasium halls in basement, each 83x23 feet; steam-heating and ventilating systems; buff brick construction with red brick trimmings; Spanish tile roof. (Previously noted.)

Fla., Fort Meade.—School Trustees will erect high school; cost \$20,000.

Fla., Gainesville.—University of Florida has \$40,000 available to erect teachers' training school; also awarded contract to erect proposed gymnasium. (Previously noted to erect three buildings.)

Fla., Gainesville.—Bids received at office of Frank P. Fleming, Law Exchange Bldg., Jacksonville, Fla., until noon January 8 to erect agricultural and University Commons buildings on university grounds; certified check for \$3000, and each bid for installing steam heating plant accompanied by certified check for \$500; usual rights reserved; plans and specifications can be seen at office of President Murphee at Gainesville and at office of

W. A. Edwards, architect, 632 Candler Bldg., Atlanta, Ga., and may be obtained by applying to architect, accompanied by certified check for \$25; sub-contractors may obtain plans, etc., upon payment of \$10; P. K. Yonge, chairman. (Previously noted.)

Fla., Tampa.—City will open bids February 1 to erect school building; 39x118 feet; ordinary construction; brick; slate roof; coal or gas stoves; electric lighting; cost \$22,000; plans by A. L. Shaw, Tampa; architect may be addressed.

Ga., Atlanta.—City will erect school at Maryland Ave. and Catharine St.; cost \$23,400; W. M. Sinton, superintendent of schools.

Ga., Bainbridge.—City voted \$50,000 bond issue to erect school; J. W. Callahan, Mayor-elect. (Recently noted.)

Ga., Douglas.—City voted \$25,000 bond issue for school improvements. Address The Mayor.

Ga., Dublin.—City will vote on \$50,000 bond issue for establishment of agricultural school. Address The Mayor.

Ga., Quitman.—City will vote January 16 on \$30,000 bond issue to erect school. Address The Mayor. (Recently noted to vote on \$40,000 bond issue, but this amount reduced.)

Ga., Thomasville.—City will vote January 16 on \$50,000 bond issue to repair Fletcher-ville and Clay Street schools and to purchase site and erect additional school; improvements to first two to cost \$10,000, and site and new building to cost \$40,000; J. M. Dekle, Mayor.

Ky., Fort Thomas.—City contemplates erection of school to cost about \$40,000. Address The Mayor.

La., Lake Charles.—City voted \$140,000 bond issue to erect school. Address The Mayor. (Recently noted.)

La., Natchitoches.—Natchitoches parish will issue \$50,000 of bonds to erect school building. Address School Commissioners.

La., Patterson.—Patterson School District voted tax to erect school; brick construction. Address St. Mary's Parish School Board, Franklin, La.

La., Vidalia.—School Board, D. C. Strickler, superintendent, receives bids until 10 A. M. January 2 to erect brick school building according to plans and specifications on file with superintendent and at office of Stevens & Nelson, architects, 1109 Hennen Bldg., New Orleans; certified check for \$500; usual rights reserved. (School Board recently noted to issue \$20,000 of bonds to erect school building.)

Miss., Brookhaven.—City will expend \$6000 to erect addition to school building; two stories and basement; 42x49 feet; ordinary construction; steam heat; electric lighting; plans by E. McCormick, Brookhaven; R. L. Davis, City Clerk. (Recently noted to receive bids until December 28.)

Miss., Natchez.—City is having plans prepared by R. H. Hunt, Chattanooga, Tenn., for Carpenter School No. 2 to cost about \$40,000.

Miss., Vicksburg.—City voted \$50,000 bond issue to erect high school. Address The Mayor. (Recently noted.)

N. C., Jefferson.—W. N. C. Conference and citizens of Ashe county contributed \$32,000 to erect school; seven rooms; furnace heat; plans being prepared by W. L. White, Hickory, N. C.

N. C., Kinston.—Dr. Ira M. Hardy, secretary of North Carolina School for Feeble-Minded, will open bids January 13 to erect dining-room, kitchen and two dormitories; fireproof construction; steam heat; electric lighting; cost \$45,000; plans by C. E. Hartge, Raleigh, N. C., and Hook & Rogers, Charlotte, N. C., and may be had from them at cost of blueprints; also install water-works and sewer system; cost \$7000. (Recently noted.)

N. C., Troy.—Troy Graded School District, R. E. Ranson, superintendent, will erect graded school building. (Bond issue of \$20,000 recently reported voted.)

S. C., Eau Claire.—Board of Education selected plans by Shand & Lafaye, Columbia, S. C., for school at Monticello and Wrensboro Rds.; two stories; brick; cost about \$20,000; S. M. Clarkson, Superintendent of Education for Richland county, Columbia, S. C. (Previously noted.)

Tex., Kingsville.—Texas-Mexican Industrial Institute, J. W. Skinner, president of board of trustees, Brownsville, Tex., plans to erect group of buildings for industrial, agricultural and mechanical arts; to provide for about 1000 students; plans not determined; probable cost of completed buildings, \$150,000; architect not selected; agricultural and

educational departments to be erected first. (Recently noted.)

Tex., Denton.—Normal Regents, Austin, Tex., will have plans prepared by Endress & Walsh, Austin, Tex., for proposed college building for North Texas Normal School; have \$50,000 appropriation.

Tex., Laredo.—School Board will erect graded school in Fourth ward.

Tex., Greenville.—Burleson College, Ed. L. Compere, president, will launch campaign to raise \$40,000 for improvements; of this amount will use \$30,000 to erect and equip dormitory and balance to enlarge campus and overhaul and equip present building.

Tex., Harrisburg.—Harrisburg School District voted \$10,000 bond issue to improve Fullerton and Cage schools. Address District School Trustees.

Tex., Mason.—Catholic Church contemplates erecting parish school; Rev. F. Fassbender in charge.

Tex., San Antonio.—Texas Presbyterian congregations are planning to erect girls' school; cost about \$200,000; Yale Hicks of San Antonio, member of Presbyterian Education Board, and R. E. Vinson, president of Austin Theological Seminary, Austin, Tex., are interested.

Tex., Waco.—School Board accepted plans for proposed ward school.

Va., Campbell.—Trustees of Money School contemplate rebuilding structure; plans not made; W. E. Money may be addressed. (Recently reported burned.)

Va., Farmville.—Town Commissioners will probably erect high school.

Va., Norfolk.—Mayor Riddick approved ordinance appropriating \$32,500 to erect 16-room brick school for negroes in Berkeley Ward. (Previously noted.)

Va., Radford.—Trustees of Normal and Industrial School for Women selected Charles M. Robinson, Richmond, Va., to prepare plans and supervise construction of college buildings to cost \$150,000 to \$200,000; W. T. Baldwin, president of board. (Recently noted.)

W. Va., Gary.—Board of Education, C. G. Seaton, secretary, is considering election to vote on \$40,000 (not \$10,000, as recently stated) bond issue to erect high and graded school building; 12 rooms and auditorium; architect not selected.

### STORES

Ala., Birmingham.—Caldwell Real Estate Co. will expend \$435 to improve building at 20th St. and Morris Ave.

Ala., Columbia.—Mark McGriff is reported to erect business buildings to replace recently-burned structure.

Ark., Russellville.—W. J. White will erect two brick business buildings.

Ala., Thomaston.—Thomaston Drug Co. will rebuild store recently burned.

Ala., Thomaston.—Thomaston Mercantile Co. will rebuild store recently reported burned.

Ark., Conway.—Plunkett-Jarrell Grocery Co., Little Rock, Ark., will erect business building.

D. C., Washington.—Woodward & Lothrop, 10th, 11th, F and G Sts., have plans by F. B. Pyle, Equitable Bldg., Washington, for store building at 1103 F St. N. W.; eight stories. (Recently noted.)

Fla., Jacksonville.—W. L. Fouraker will erect two-story frame building on Cherry Ave.

Fla., Jacksonville.—Katie Bandel, 512 W. Monroe St., will erect store and dwelling; cost \$6000. (See "Dwellings.")

Fla., Jacksonville.—C. E. Martindale will erect two buildings; two stories; frame.

Ga., Atlanta.—D. W. Corey purchased site on Luckie St. near Forsyth St. and is reported to erect building.

Ky., Middlesboro.—Isaac Easter will erect business building.

Md., Baltimore.—Spedden Shipbuilding Co., Boston St. and Kenwood Ave., will erect store, office and warehouse building; three stories; brick; concrete cellar; 25x75 feet; two-story fireproof vault; Piel Construction Co., 241 Arunah Ave., Baltimore, is lowest bidder.

Miss., Hattiesburg.—D. E. McInnis has plans by Weathers-Foley Company, Memphis, Tenn., for proposed store and office building; 30x100 feet; ordinary construction; steam heat; gas and electric lighting; concrete sidewalks; electric elevator; date of opening bids not fixed.

Mo., Kansas City.—Jacob M. Cohen, Victor Bldg., will erect business building.

Mo., Kansas City.—B. Sidler will erect brick store at 4126-28 St. John St.; cost \$8000.

Mo., Springfield.—Walter Hendrickson is reported as having plans prepared for store and office building; six stories.

Mo., St. Louis.—George F. Tower will erect department store at Washington Ave. and 7th St.; nine stories and basement; cost about \$250,000.

Mo., St. Louis.—Seventeenth Street Realty Co. will erect business building at Washington Ave. and 17th St.; fireproof; plans by and construction under supervision of Albert B. Groves, St. Louis.

Mo., St. Louis.—C. E. Touhill will erect business building for J. F. Conrad Grocery Co.; two stories; brick.

Mo., St. Louis.—S. G. Adams Stamp & Seal Co. has plans by Charles H. Deiter to reconstruct building at 414 N. 6th St.; cost about \$20,000.

Mo., St. Louis.—Delor Realty Co. will erect store at 5659 Delmar St.; two stories; cost \$20,000.

Okla., Muskogee.—Muskogee Realty Co., Robert L. Owen, president, will erect three buildings; one store and office building at 5th and Okmulgee Sts., two stories, 96x100 feet, cost \$18,000; apartment-house at E St. and E. Broadway, two stories, concrete, 60x160 feet, 32 apartments, cost \$26,000; business building at 5th and Okmulgee Sts., 100x100 feet.

Okla., Muskogee.—James A. Harris will erect proposed mercantile and office building; 180x100 feet; fireproof construction; steam heat; cost \$75,000; no contract. (See "Machinery Wanted.")

S. C., Columbia.—George V. Allworden has plans by Shand & Lafaye, Columbia, for building to contain 11 stores; one story; brick; 127½x105 feet.

S. C., Greenville.—W. B. Harrison will erect store and office building; three stories; stores on first floor; offices above.

Tex., Corpus Christi.—Corpus Christi Hardware Co. is having plans prepared for business building; three stories.

Tex., Dallas.—Clarence Linz will erect business building; two stories; brick.

Tex., Dallas.—J. Howard Andrey will erect building at Ervay and Pacific Aves.; three stories; concrete; cost \$31,700.

Tex., Dallas.—Fred Apple will erect building at 1110 Canton St.; one story; brick; cost \$4000.

Tex., Dallas.—A. A. Jackson will expend \$5000 for repairs to building at 817 Elm St.

Tex., Houston.—Henke & Pillot will erect business building on Milam St. between Congress and Franklin Aves.; 50x100 feet; "L" shape; three stories and basement; plate-glass doors and show windows.

Tex., St. Jo.—O. B. Carver, Hamlin, Tex., will rebuild store; 30x90 feet; plans not made. (Recently reported burned.)

Tex., Waco.—E. Rotan will remodel building on S. 3d St. for business purposes. (See "Miscellaneous Structures.")

W. Va., New Martinsville.—Ott Toland will erect business building.

## THEATERS

Md., Baltimore.—Joseph Brodie, 1118 Light St., will erect moving-picture theater; two stories; pressed brick and concrete; fireproof; seating capacity 800; cost \$20,000; contractors estimating are John K. McIver, 309 Wilson Bldg.; M. C. Davis, 15 E. Fayette St.; H. L. Maas, 1119 Ensor St., and J. E. Pyles, 230 N. Gilmor St., all of Baltimore. (Lately noted.)

Mo., St. Louis.—Mikado Theater Co. will erect picture-show theater.

Mo., Carthage.—Business Men's League is promoting erection of proposed opera-house and hotel building to cost about \$200,000.

N. C., Wilmington.—James Howard will erect theater on Princess St.; 40x144 feet; dome-shaped roof; auditorium with seating capacity of 700 and gallery of 200 seating capacity; plans by B. H. Stevens, Wilmington.

Okla., Muskogee.—J. W. Houck, W. S. Dill and W. F. Heber of Tulsa, Okla., will erect moving-picture theater; one story; brick; 64x100 feet; cost \$4000.

Okla., Enid.—Bofinger & Field, managers of Majestic Theater, leased entire structure now occupied by theater; will remodel and erect 25-foot addition, construct six-foot exit, etc.

Tex., Dallas.—Interstate Amusement Co., Karl Hohlitzelle, president, Fort Worth and Houston, Tex., will probably have plans prepared by Isaac Taylor, St. Louis, Mo., for theater; two stories; auditorium 100x125 feet; seating capacity, 2400; lobby 30x60 feet; foyer 15x100 feet. (Recently noted.)

Va., Phoebus.—American Theater (A. M. Johnson, owner) will erect theater to replace

burned structure; brick; concrete floors; 35x110 feet; semi-fireproof; hot-water heat; electric lighting; cost \$8000; plans and construction by owner.

Va., Phoebus.—Philip A. Fuller, Sr., is organizing company with \$15,000 capital stock to erect theater; brick.

## WAREHOUSES

D. C., Washington.—Samuel J. Prescott & Co., 814 13th St., will expend \$5000 to erect four warehouses and stable; warehouses, 40x64 feet and 20x30 feet; two stories;

private plans; construction by company. Ga., Atlanta.—Crane Co., Chicago, Ill., will erect warehouse; six stories; concrete; cost \$75,000.

Ky., Shelbyville.—Shelby Loose-Leaf Warehouse Co. incorporated with \$20,000 capital stock by E. T. Pollard, John E. Brown and May F. Rothchild.

La., New Orleans.—Mrs. A. J. Stallings will repair and improve building at Magazine and Julia Sts. for warehouse; cost \$16,000.

Okla., Muskogee.—Forrest Hardware Co. will erect warehouse; 30x50 feet.

## BUILDING CONTRACTS AWARDED

### APARTMENT-HOUSES

Tenn., Memphis.—W. S. LaGrill has contract at \$36,000 to erect Carter Flats on Madison Ave.; three stories; 12 apartments of six rooms each.

Va., Norfolk.—Scott B. Appleby has plans by and awarded contract to C. F. Overmyer, 48th St., Norfolk, to erect proposed apartment-house; nine apartments; brick and stone; steam heat; cost \$18,000.

Va., Norfolk.—Berry & Shannon have plans by and awarded contract to C. F. Overmyer, 48th St., Norfolk, to erect two apartment-houses; 28x78 feet and 41x73 feet; one, three apartments; other, six apartments; brick and stone; cost \$4854 and \$14,000, respectively. (Recently noted under "Dwellings." See "Machinery Wanted.")

Va., Richmond.—Edwin Pleasants, 112 S. 3d St., has plans by and awarded contract to J. E. Carr to erect tenement-house; two stories; seven rooms; ordinary construction; cost \$5000. (Recently noted.)

Va., Richmond.—Chapin & Hume have plans by and awarded contract to J. E. Carr to erect four brick tenement-houses; seven rooms each; ordinary construction; cost \$10,000. (Recently noted.)

### ASSOCIATION AND FRATERNAL

Ala., Montgomery.—Benevolent Protective Order of Elks awarded contract to James Hodgson, Montgomery, to erect addition to lodge building; two stories; brick; cost \$22,540.

N. C., Maxton.—Hector MacLean awarded contract to J. A. Williams, Maxton, to erect lodge, store and theater building. (See "Stores.")

Tex., Alpine.—Ancient Free and Accepted Masons will expend \$13,000 to erect Masonic Temple and office building; two stories; 33x110 feet; lighting contract will be let separately; plans by William Dougherty of Alpine; contract recently noted awarded to John M. Webb, Alpine; materials purchased.

### BANK AND OFFICE

Md., Baltimore.—Savings Bank of Baltimore, Baltimore and Charles Sts., awarded contract to John Hiltz & Son, 3 Clay St., Baltimore, to erect office building at Charles and German Sts., to be leased by A. Schumacher & Co., 7 S. Gay St.; German architecture, with German renaissance style interior; brick and reinforced concrete fireproof construction; two stories, attic and basement; tiled floors; plans by Parker, Thomas & Rice, Union Trust Bldg., Baltimore.

Tex., Alpine.—Ancient Free and Accepted Masons will expend \$13,000 to erect office building, etc.; contract let. (See "Association and Fraternal Buildings.")

Tex., Eastland.—City National Bank awarded contract to W. D. Collins Safe Co., Denison, Tex., to remodel interior of building, install marble fixtures, tile flooring and marble wainscoting.

Tex., Marion.—Marion State Bank awarded contract to W. D. Collins Safe Co., Denison, Tex., to remodel building and install quarter-sawn oak, marble bank fixtures and wainscoting.

### CHURCHES

La., Hackley.—Walter Payne, Hackley, has contract to erect Baptist Church at Copperas Ford.

Tenn., Knoxville.—Mountain View Baptist Church awarded contract to Toms & Harth, Knoxville, to erect edifice at Lawrence Ave. and Mabry Sts.; cost \$5000.

Tex., Gainesville.—First Presbyterian Church, Rev. R. L. Irving, pastor, awarded contract to M. P. Kelly, Gainesville, to erect edifice; 102x87 feet; pressed brick; terra-cotta trimmings; cost \$22,500; plans by W. A. Cann, St. Louis, Mo. (Previously noted. See "Machinery Wanted.")

Tex., Maypearl.—Presbyterian Church

awarded contract to erect edifice. Address The Pastor, Presbyterian Church.

Va., Richmond.—St. Thomas' Episcopal Church, Rev. Frank A. Ridout, rector, awarded contract to W. L. Ragland, Richmond, to erect 35x90-foot edifice and 64x42-foot parish hall and vestry; ordinary construction; stone exterior; steam heat (not included in contract); electric lighting; cost \$13,400; plans by H. C. Linthicum, Richmond. (Mr. Ragland recently noted as lowest bidder.)

### CITY AND COUNTY

Ala., Bay Minette.—Jail.—Baldwin County Commissioners awarded contract to Southern Structural Steel Co., San Antonio, Tex., to erect jail; cost about \$15,000. (Previously noted.)

### COURTHOUSES

Ky., Hazard.—Perry county, J. G. Campbell, County Judge, awarded contract to erect courthouse; plans by B. F. Smith, Pope Bldg., Washington, D. C.; cost \$36,000. (Previously noted.)

Tex., Mount Vernon.—Franklin County Commissioners awarded contract to L. R. Wright & Co., Dallas, Tex., to erect courthouse; cost \$42,000; plans by L. L. Thurman, Dallas, Tex.

### DWELLINGS

Fla., Brooksville.—F. B. Coogler awarded contract to N. A. Carpenter and C. Carpenter, Chester, S. C., for woodwork on residence; cedar construction; foundation and brick work under supervision of above contractors.

Fla., Lakeland.—C. F. O'Doniel awarded contract to Alonzo Logan, Lakeland, to erect residence; cost \$3000.

Fla., Tampa.—Thomas L. Kennedy awarded contract to erect residence; cost \$5000; plans by Bonfoey & Elliott, Tampa.

Fla., Lakeland.—J. M. Woods awarded contract to Alonzo Logan, Lakeland, to erect residence; ten rooms.

Ga., Atlanta.—Hughes Spalding, 628 Empire Bldg., awarded contract to Corcoran & Cleveland, Atlanta, to erect bungalow; 50x90 feet; ordinary construction; hot-air heat; electric lighting; cost \$4500; plans by Haralson Bleckly, Empire Bldg., Atlanta. (Recently noted.)

Ky., Lexington.—Calvary Baptist Church awarded contract to J. H. Perkins, Lexington, to erect parsonage; two stories; brick; eight rooms; cost \$3500.

Md., Baltimore.—Ridgely Gaither, Gaither Estate Bldg., awarded contract to George L. Dorsey, Carlisle and Garrison Aves., Baltimore, to erect two residences at 1003-1003½ Linden Ave.; 10x28 feet; plans by F. E. Beall, 213 St. Paul St., Baltimore.

Md., Baltimore.—Pearce & Scheck, 415 E. Baltimore St., are reported to erect dwellings on Bateman and Elgin Ave.

Md., Roland Park.—W. S. Townsend, 501 Roland Ave., awarded contract to Roland Park Company, 408 Roland Ave., Roland Park, to erect cottage at Poplar Hill; frame; slate roof; steam heat; gas and electric fixtures; plans by E. L. Palmer, 408 Roland Ave., Roland Park.

Md., Roland Park.—J. Wilson Stahl will expend \$7000 to erect dwelling; 25x43 feet; mill construction; plans by Henry Wirsong, 223 N. Charles St., Baltimore; contract recently noted awarded to J. Henry Smith, 1426 Light St., Baltimore.

Okla., Muskogee.—M. L. Jordan awarded contract to J. Frishman, Surety Bldg., Muskogee, to erect residence; cost \$3000.

Tenn., Nashville.—E. E. French awarded contract to W. H. Crutcher, Nashville, to erect dwelling; seven rooms; ordinary construction; hot-air heat; gas and electric lighting; cost \$5500; plans by R. E. Turbeville, 412 Union Bank Bldg., Nashville. (Recently noted.)

Tenn., Nashville.—Powell Phillips awarded contracts to erect dwelling; eight rooms; frame; furnace; gas and electric lighting;

cost \$4000; plans by R. E. Turbeville, 412 Union Bank Bldg., Nashville; no general contract. (Recently noted.)

Tenn., Isabella.—Ducktown Sulphur, Iron & Copper Co., Ducktown, Tenn., awarded contract to Robert P. McCarter, Ducktown, Tenn., to erect dwelling for engineer; seven rooms; brick veneer; cost \$4000.

### GOVERNMENT AND STATE

Ala., Florence.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., awarded contract at \$108,800 to Barnes Bros., Logansport, Ind., to erect postoffice building; stone construction; 6000 square feet floor space; fireproof. (Contract recently noted awarded at \$38,800 to same firm for stucco construction, but this contract amended.)

Tenn., Jordanla.—Reformatory.—Building committee of State Juvenile Reformatory awarded contracts to erect reformatory buildings as follows: Carpenter work, J. W. Patrick & Co., at \$11,750; brick work, N. G. Bush & Co., at \$15,736; cut stone, Southern Cut Stone & Monument Co., at \$590; plastering, Cooper & Ferguson Company, at \$3018.62; painting and glazing, Isaiah Smith, at \$1392; iron and steel work, Nashville Bridge Co., at \$1009; electrical work, Braid Electric Co., at \$913; cement work, Adamant Stone & Roofing Co., at \$325; all of Nashville, Tenn. (Lately mentioned.)

### HOTELS

Ark., Russellville.—A. B. Renfrow awarded contract to W. L. Scarlett, Russellville, to erect business and hotel annex building. (See "Stores.")

### MISCELLANEOUS

Ala., Gadsden.—Hospital.—Dr. A. W. Ralls awarded contract to R. W. Kirby, Gadsden, to erect hospital to replace burned structure. (Previously noted.)

Miss., Jackson.—Home.—Managers of Old Ladies' Home awarded contract to John F. Barnes, Jackson, to erect addition to home; 20 rooms; two stories and basement; cost \$10,000.

Va., Richmond.—Memorial.—Confederate Memorial Association, J. Taylor Ellyson, president, 924 Mutual Bldg., awarded contract at \$90,625 to Metzger & Wells, Philadelphia, Pa., to erect Confederate memorial building; at \$2480 to W. B. Catlett & Co., Richmond, for electric wiring, telephone connections and gaspiping; at \$7981 to W. B. Longworth for heating and ventilating; stone construction; plans by Bissell & Sinkler, 805 Bailey Bldg., Philadelphia, Pa. (Previously noted.)

### RAILWAY STATIONS

Ga., Columbus.—Central of Georgia Railway, C. K. Lawrence, chief engineer, Savannah, Ga., awarded contract to A. D. Ray, Columbus, to erect passenger station; 16x43 feet; ordinary brick construction; cost about \$2500; plans by G. M. Boley, Savannah, Ga. (Recently noted.)

### SCHOOLS

Fla., Gainesville.—University of Florida awarded contract to erect proposed gymnasium. (See Buildings Proposed, "Schools.")

Md., Brunswick.—City awarded contract to Lloyd C. Culler, Frederick, Md., to erect high school; fireproof; red brick; terra-cotta trimmings; slate roof; two stories and basement; corridors to have concrete floors; iron and fireproof stairways; plans by A. C. Leach, 323 N. Charles St., Baltimore, Md. (Previously noted.)

Miss., Poplarville.—Trustees of Pearl River County Agricultural High School awarded contract to Mr. Crymes to erect \$12,000 administration building; work will soon begin. (Lately noted.)

Mo., Pittsburg.—Regents of State Normal School awarded contract to S. M. Gatches, Pittsburg, to erect proposed machinery hall; Legislature appropriated \$50,000.

Tex., Bay City.—School Board, Amos Lee, secretary, awarded contract at \$16,286 for brick work for school to Maar & Osborn, Bay City; two stories and basement; plans by Henry T. Phelps, Gunter Bldg., San Antonio, Tex. (Recently noted.)

Va., Richmond.—Richmond College awarded contracts for erection of woman's college building as follows: Brick work, Fulton Brick Works, Richmond; structural steel work, Chesapeake Iron Works of Baltimore; reinforced concrete work, Harwood & Moss, Newport News, Va.; fireproof partitions, Keystone Fireproofing Co.; marble, slate and tile work, W. F. Mahoney, Richmond; light iron work, Richmond Structural Steel Co.,



Richmond; carpentry, Harwood & Moss, Newport News, Va.; steel windows, Henry Hope & Sons, New York; slate roof, Harwood & Moss, Newport News, Va.; painting, Hitzler & Gantert, Richmond; plans by and construction under supervision of Carneal & Johnston, 409 National Bank of Virginia Bldg., Richmond. (Previously noted.)

## STORES

Ark., Russellville.—A. B. Renfrow awarded contract to W. L. Scarlett, Russellville, to erect store and hotel annex building; two stories; brick; 36x120 feet; lower floor for business purposes; upper floor for annex to Palace Hotel.

Mo., St. Louis.—Monadnock Realty Co. awarded contract to Westlake Construction Co., St. Louis, to erect Railway Exchange Bldg., sometimes called Monadnock Block, to be occupied in part by May Department Store Co.; structural steel; brick walls; concrete floors; 22 stories; to cover entire city block; cost about \$7,000,000; plans by Mauran & Russell, St. Louis. (Previously noted.)

N. C., Maxton.—Hector MacLean awarded contract to J. A. Williams, Maxton, to erect four store buildings; upper floors of two for lodge rooms and of other two for theater; cost \$10,000.

S. C., Seneca.—W. P. Nimmons closed contract with B. E. & L. H. Grandy, Pickens, S. C., to erect three-story brick store building. (See "Machinery Wanted.")

Tenn., Alamo.—Edenton Hardware Co., Jackson, Tenn., awarded contract to R. W. Fleming, Alamo, to erect business building.

Tenn., Chattanooga.—Clemens Bros. will expend \$12,000 to erect store building; 43x35

feet; four stories and basement; ordinary and mill construction; heating and lighting not decided; concrete and prism lights for sidewalks; plans by John L. Snoddy, Chattanooga; contract recently noted awarded to A. W. Duncan, 504 Duncan Ave., Chattanooga.

Tex., Crockett.—William Patton awarded contract to erect four business buildings; brick construction.

Tex., San Antonio.—Jackson Neal has plans by and awarded contract to A. A. Evans to erect building containing three stores; 100x125 feet; brick; cost \$22,000. (Recently noted.)

## THEATERS

N. C., Maxton.—Hector MacLean awarded contract to J. A. Williams, Maxton, to erect store, lodge and theater building. (See "Stores.")

Va., Norfolk.—M. S. Spratley will erect Tazewell Theater; fireproof; brick and terra-cotta; green-tile trimmings; elliptical plate-glass front; glass and bronze hood over sidewalk; seating capacity 1650; cost \$125,000; contract originally awarded to East & Hobbs, Norfolk, but amended to make structure fireproof; plans by E. C. Horn & Co., New York. (Previously noted.)

## WAREHOUSES

Md., Baltimore.—Spedden Shipbuilding Co., Boston St. and Kenwood Ave., will erect store, office and warehouse building; Piel Construction Co., 241 Arunah Ave., Baltimore, is lowest bidder. (See "Stores.")

Tex., Beaumont.—Beaumont Light & Power Co. awarded contract to Thames & Weber, Beaumont, to erect warehouse; one story; brick; 30x80 feet; cost about \$3500.

# RAILROAD CONSTRUCTION

## RAILWAYS

Ala., Demopolis.—John T. Cochrane of Mobile, president of the Alabama, Tennessee & Northern and the Tombigbee Valley railroads, is reported to have acquired the Vredenburgh Lumber Railroad and may extend it to Linden and Demopolis. Wm. Toxey is chief engineer of the Cochrane lines at York, Ala. A later report says that the acquired line is 20 miles long from Pine Hill to Sweetwater, Ala. It will be named the Alabama & Northwestern. Extension would be 30 miles. The line will be improved for general service.

Ark., Jonesboro.—Grading is reported started for the electric railway from Jonesboro to Nettleton. Preston Hatcher and others are interested.

Ala., Montgomery.—The Louisville & Nashville Railroad, according to a local report, will enlarge its Montgomery yards to about four times their present dimensions. A large underpass is also to be built in connection with the improvement. J. E. Willoughby is chief engineer of construction at Louisville, Ky.

Ala., Union Springs.—D. B. McKenzie of Eufaula, Ala., says a report, will make survey for the proposed railroad from Union Springs to Dothan, Ala.

Ark., Reyno.—The Missouri Central Railroad, a new concern, is reported planned for a line from Reyno via Maynard and thence into the southern part of Missouri, the proposed terminal being Jefferson City. The Board of Trade at Reyno, Ark., may be able to give information.

Fla., Century.—The Alger-Sullivan Lumber Co. says: "We are now constructing an extension of our standard gauge logging railroad into a tract of timber which we recently purchased in Conecuh county, Ala. The extension will be about 25 miles, making our total main line 65 miles long." J. W. Wright, Jr., of Union Springs, Ala., and J. N. Gillis & Son of Brewton, Ala., have the grading contracts.

Fla., Pensacola.—G. A. Berry, chief engineer Gulf, Florida & Alabama Railway, wires that railroad yards and other improvements costing, it is estimated, about \$500,000, will be built at Pensacola.

Fla., Pensacola.—The Louisville & Nashville Railroad contemplates building a switching yard and main line tracks in connection with its proposed new Union Station. The matter is before the City Council. J. E. Willoughby is chief engineer of construction at Louisville, Ky.

Fla., Pensacola.—Edward B. Garretson & Co., contractors, will, it is reported, sublet in January about 120 miles of railroad construction in Florida and Alabama. Mr. Garretson's address is San Coulas Hotel, Pensacola, Fla.

Fla., Tarpon Springs.—The Port Richey Northern Railway, from a point on the Tampa Northern Railroad near Tarpon Springs north 10 miles to Port Richey, is reported nearly complete, only two miles of grade to be done. W. E. Guilford of Tampa and others are interested.

Fla., Tampa.—The Atlantic, Okeechobee & Gulf Railway Co., which is completing surveys for lines from Tampa to Mulberry, Lakeland, Arcadia and Forts Meade and Lauderdale, has organized with officers thus: H. C. Ferriotti, president; E. E. West, first vice-president; R. L. Riley, second vice-president; A. H. West, third vice-president; D. A. Simmons, general counsel; E. L. Higbee, treasurer; T. P. Bell, secretary; Wall & McKay, assistant general counsel. Headquarters at Tampa, Fla.

Ga., Elberton.—J. A. Moss of Washington, Ga., who is interested in the Elberton & Eastern Railroad, is reported saying that contract has been let for 21 miles from Elberton to Tignall, Ga., and that this much will be completed in 1912. Construction has begun. It is intended to continue construction to Washington, Ga., as soon as the line is built to Tignall.

Ga., Florilla.—The Florilla & Indian Springs Railway is reported acquired by the Middle Georgia Interurban Railway, which proposes to build from Griffin via Jackson to Social Circle, Ga. L. F. Robert of Atlanta is president, and W. F. Smith of Florilla, general manager of the interurban.

Ga., Moultrie.—The Flint River & Northeastern Railroad, says a dispatch to the Manufacturers Record, will spend \$125,000 for equipping line from Doerun to Pelham, Ga., with new rails, complete. Bids to be received January 15. J. R. Hackett is general superintendent at Moultrie, Ga.

Ga., Springfield.—The Brinson Railway is reported to have completed surveys for an extension from Waynesboro to Athens, Ga., 105 miles. S. T. Grimshaw, Springfield, Ga., is chief engineer.

Ga., Waycross.—Alex. Sessoms of Waycross, one of the incorporators of the Waycross & Western Railroad, is reported completing plans for its immediate construction.

Ky., Jackson.—H. H. Gibson of Jackson is reported to have made survey for a railroad from Paintsville, Ky., to Jackson, about 40 miles, and expects to construct the road next year.

Ky., Louisville.—The Louisville & Interurban Railway has applied to the Council for franchise to build an extension about a mile long. T. J. Minary, president of the Louisville Railway, may be addressed.

La., Jonesville.—F. W. Green, general manager, Louisiana & Arkansas Railway, Stamps, Ark., says that about two years ago line was located from Jonesville to Vidalia, La., 25

miles, but no definite plans have been made for its construction.

La., Natalbany.—The Natalbany & New Orleans Railway is reported to have completed grade between Pine Grove and Grangeville, and will finish track thereon by December 20.

La., New Iberia.—The New Iberia, Lafayette & Northeastern Railroad Co. is reported organized with authorized capital of \$1,000,000 to build a line from New Iberia to Lafayette, St. Martinsville, Church Point and Eunice, La., about 80 miles. Directors: F. M. Welch, president; Homer Barousse of Church Point, first vice-president; J. W. Lyons, second vice-president, and E. L. Estorge, secretary and treasurer; J. P. Colombe of Lafayette, Dr. J. R. Olivier and A. J. Gouln of St. Martinsville and Jules Dreyfus of New Iberia.

La., Vivian.—T. E. Bird, secretary of the Progressive League, is reported saying that money has been raised to survey for a railroad 13 miles long from Vivian to a connection with the standard gauge lumber railroad which is under construction from Myrtis, La., to Jefferson, Tex., which now has 17 miles operated.

Md., Baltimore.—The Western Maryland Railway is figuring upon plans for the general upbuilding of its present main line between Baltimore and Cumberland for operation in connection with heavy traffic to come over the Connellsville extension. This will doubtless include the erection of some new bridges and the strengthening of some old ones. H. R. Pratt, Baltimore, is chief engineer.

Md., Baltimore.—Engineers for the Pennsylvania Railroad Co. are reported surveying in Harford and Baltimore counties for a change of line of the Philadelphia, Baltimore & Washington Railroad between a point about ten miles north of Baltimore and a point about six miles south of Havre de Grace, Md., to avoid the long trestle crossings over the Gunpowder and the Bush Rivers. This would require about 20 miles of new construction. A. C. Shand is chief engineer at Broad Street Station, Philadelphia.

Miss., Batesville.—The Batesville Southwestern Railway Co. is reported proposing extension from Yocoma to Charleston, Miss., 11 miles. R. J. Darnell, Inc., Memphis, Tenn., is interested.

Miss., Gulfport.—The Gulfport & Western Railway Co., recently chartered to build from Gulfport, Miss., to Covington, La., about 65 miles, is reported organized; capital \$500,000. Survey is to begin about January 1. Directors are: President, W. H. Hardy; vice-president, L. N. Dantzler; treasurer, George P. Hewes; secretary, B. C. Bowen; H. S. Weston, T. A. Hardy and A. McAlpin.

Miss., Meridian.—A. N. Bullitt of Memphis, Tenn., is reported to have established headquarters at Meridian for surveying to Pensacola, Fla., for the proposed Memphis & Pensacola Railroad.

Mo., Cardwell.—The Paragould & Memphis Railroad, says a report quoting an official, contemplates an extension from Caldwell, Mo., to Paragould, Ark., 17 miles; also from Manila to Lepanto, Ark., 12 miles. J. W. Vall, Cardwell, Mo., is president and general manager.

Mo., Joplin.—The Frisco System, it is announced, will build a new passenger terminal and freight yards in Joplin, beginning work within ten days. F. G. Jonah is engineer of construction at St. Louis, Mo.

Mo., Springfield.—The Missouri Pacific Railway, it is reported, has surveyed for an extension from Springfield to Bagnell, Mo., about 90 miles, to make a connecting line. E. F. Mitchell is chief engineer of construction at St. Louis, Mo.

N. C., Arapahoe.—The Arapahoe-Bairds Tramway Co. of Arapahoe is incorporated with authorized capital of \$5000; incorporators, H. A. Reel of Reelsboro, N. C.; C. W. Reel of Arapahoe, N. C., and others.

N. C., Allemarle.—James R. Moss says that construction of the proposed electric railway from the courthouse to the Moss Mineral Springs (formerly Crowell Springs), two miles, will begin as soon as franchise is granted, which may be in January.

N. C., Goldsboro.—The Goldsboro, Seven Springs & Swansboro Railroad Co. has filed charter to build a line from Goldsboro to Swansboro, N. C., 70 miles, through Wayne, Lenoir, Jones and Onslow counties; capital, \$1,500,000, paid in. Incorporators: Frank Thompson, Jacksonville, N. C.; 1 share; T. H. Pritchard, 1 share; T. H. Pritchard Transportation Co., 198 shares, both at Swansboro; M. H. Allen, John D. Longston, R. C. Griffin, Wm. A. Robertson and N. P. Young, 100 shares each; all at Goldsboro.

N. C. Construction expected to start immediately. The Goldsboro Traction Co. has been acquired, according to a report, and will be used to enter Goldsboro.

N. C., Greensboro.—A. E. Tate of High Point, N. C., who is reported promoting plans for the extension of the Randolph & Cumberland Railroad, is quoted saying that if Winston and Broadway townships vote the bonds proposed on January 8 the line will be built, notwithstanding that nine townships in Guilford and Randolph counties voted against bonds. D. A. McDonald is president at Carthage, N. C.

N. C., Lenoir.—Reported that H. A. London of Philadelphia will make survey for the proposed Watanga Railroad to be built by the Grandin Lumber Co. of Lenoir.

N. C., Mount Airy.—J. T. Heare, superintendent of the Mount Airy & Eastern Railway, says that a preliminary survey has been made from Mount Airy, N. C., to Philip, Va., but it is not certain that the line will be built. This is about 30 or 40 miles.

N. C., Raleigh.—Charles E. Johnson says there is no foundation for the press report that he and associates will build an electric railway from Raleigh, N. C., to Florence, S. C.

N. C., Raleigh.—E. C. Duncan of Raleigh, who is a director of the Norfolk Southern Railroad, is quoted saying that definite efforts are being made to secure the construction of the contemplated extensions which will make a line from Raleigh to Concord and Charlotte, N. C., and it appears to be assured that they will be built. F. L. Nicholson, Norfolk, Va., is chief engineer.

Okla., El Reno.—Reported that survey will be made for an extension of the Oklahoma City-El Reno Interurban Railway (just completed) from El Reno via Watonga to Woodward, Okla., about 110 miles. A. H. Classen is president and J. W. Shartel, vice-president and general manager, both of Oklahoma City, Okla.

Okla., Pawhuska.—S. M. Porter of Caney, Kans., who has been promoting the Cherryvale, Oklahoma & Texas Railway for some time, is reported saying that he has secured French and English capital to build the projected line, which will be several hundred miles long.

Okla., Hammon.—An officer of the Wichita Falls Route is reported saying that construction is in progress on 25 miles north from Hammon, toward Woodward, Okla., 68 miles work also being under way on two miles south of Woodward and seven miles north from there on further extension to Forgan, 82 miles. Contract for track and bridges is let. D. S. Hooker, Wichita Falls, Tex., is chief engineer.

Okla., Henryetta.—The Missouri, Oklahoma & Gulf Railroad, it is reported, will award contracts before January 15 for its proposed extension from Henryetta to Oklahoma City, 102 miles. J. J. Harrison, Muskogee, Okla., is chief engineer. A new charter has been taken out in Oklahoma with \$20,000,000 capital for this proposed line and other extensions. Incorporators are William Kenedick, Kansas City, Mo.; W. P. Dewar, E. R. Jones, W. N. Patterson, Muskogee, Okla.; Arthur Miller, Maurice H. Winger and Fred Ruark, Kansas City, Mo.

Okla., Oklahoma City.—The Rock Island Lines, it is reported, will spend next year \$200,000 for improvements on the road in Oklahoma, which will include two bridges over the North Canadian River at Dale and Council, where steel and concrete structures will be erected in place of present wooden bridges. J. B. Berry is chief engineer at Chicago, Ill.

Okla., Taloga.—The Taloga, Putnam & Southern Railway Co. is reported to have elected officers as follows: S. H. Whittenberg, president; Frank Waddell, vice-president; Chas. H. Miller, treasurer; M. R. Ruble, secretary, and C. W. Musgrave, general manager.

S. C., Columbia.—The Seaboard Air Line has begun improvements at Columbia which, according to a local report, will cost about \$500,000. They include a yard at Cayce, immediately over the river, where considerable grading is done. C. W. Lane & Co. of Atlanta are the contractors. R. B. Gand is engineer in charge.

S. C., Columbia.—A report from Washington, where the headquarters of the company are, quotes President Finley of the Southern Railway as saying it is intended to construct a general receiving, classification and dispatching yard at Royster, near Columbia, S. C. W. H. Wells, Washington, D. C., is chief engineer of construction.

S. C., Pelzer.—The Cathey Construction Co. of Asheville, N. C., is reported to have been awarded a contract upon the Greenville, Spartanburg & Anderson Electric Railway near Pelzer.

Tex., Dayton.—The Trinity Valley & Northern Railway, according to a report quoting an officer, has surveyed for an extension from Lumbus to Lamb, Tex., seven miles. A. J. Wise, Houston, Tex., is chief engineer.

Tenn., Dyersburg.—The Chicago, Memphis & Gulf Railroad proposes to build an extension from Hickman to Clinton, Ky., 16 miles. S. G. Latta, Dyersburg, Tenn., is president and general manager.

Tenn., Nashville.—H. H. Mayberry, president of the Nashville & Gallatin Electric Railway, is reported saying that grading is practically complete and in about 30 days tracklaying will begin.

Tex., Austin.—B. F. Youkum, chairman of the Frisco System, is reported to have informed the Texas Railroad Commission that construction of the long contemplated extension from Brady via Mason to San Antonio is assured, and that it will be built in the near future; also that the St. Louis, Brownsville & Mexico Railway, one of the Frisco Lines, is building from Victoria to Bloomington.

Tex., Dallas.—The Missouri, Kansas & Texas Railway Co. denies the press report that it would enlarge its track facilities at Dallas.

Tex., Giddings.—The Houston & Texas Central Railroad is preparing to let another section of work on the line from Stone City to Giddings, on which 13 miles are under contract. L. A. Cottingham is engineer in charge of way at Houston, Tex.

Tex., Greenville.—The Eastern Texas Traction Co., promoted by Joseph F. Nichols of Greenville, Tex., has applied for franchise at Paris, Tex., to which point the line is to run via Wolfe City and other places. Charter has been obtained in Maine for the Eastern Texas Electric Co., presumably for the foregoing plan, with authorized capital of \$1,000,000, the incorporators there being C. E. Eaton, president, and T. L. Croteau, treasurer, Portland, Maine.

Tex., Huntsville.—E. H. Robinson of Palestine, Tex., and others are reported working on plans to build a railroad from Huntsville to Concord, Tex., 59 miles, via Madisonville, Midway, Leona and Centerville. A local subscription for \$130,000 of bonds is asked from Huntsville and Walker counties, with right of way and depot site.

Tex., Marshall.—J. E. Foway, vice president and general manager of the Marshall & East Texas Railway, says that nothing definite has been decided as to the time of beginning construction on any extensions. There have been authorized \$5,000,000 in bonds, and about \$1,500,000 will be issued as soon as the Texas Railroad Commission approves them. R. J. Lockwood is chief engineer.

Tex., Quanah.—The Quanah, Acme & Pacific Railway, says a report quoting D. E. Decker, general attorney, is surveying for an extension of 75 miles from Paducah to Floydada, Tex. A. F. Sommer is engineer at Quanah, Tex.

Tex., Pecos.—The Kansas City, Mexico & Orient Railway is reported to have laid track on the San Angelo-Port Stockton line to within four miles of Pecos River and the bridge, with track, is expected to be done within three weeks.

Tex., Weatherford.—The Chicago, Weatherford & Brazos Valley Railroad is reported in the hands of G. A. Holland of Weatherford as receiver, who is quoted saying that the receivership need not necessarily interfere with the plans for completing the road. The Mitchell-Pigg Construction Co. was the contractor. About 60 per cent. of the grade between Weatherford and Bridgeport, Tex., 32 miles, is said to be done.

Va., Dante.—There are no prospects for immediate construction of the proposed extension of the Clinchfield Railway from Dante and Laurel Junction, Va., to Elkhorn City, Ky., 33 miles, for which surveys have been made. Ward Crosby, Johnson City, Tenn., is chief engineer.

Va., Hurley.—Reported that an extension of the Big Sandy & Cumberland Railway has been built from Matney to Rife, Va., two miles. C. W. Litz, Hurley, Va., is general manager.

Va., Richmond.—John C. Robertson of Richmond, promoter of the Richmond, Urbanna & Peninsula Railway Co., is quoted saying that contracts have been signed (conditioned upon the proposed purchase of the Seven Pines Street Railway) for construction of the new road from Seven Pines to the Pamunkey River. A subcommittee of the City Council has approved the proposed sale.

Va., Stonegap.—The Interstate Railroad Co. says that no details have been arranged as to the construction of the extension to Norton, Va. A. H. Reeder is general manager, and J. P. Wolfe, chief engineer.

W. Va., Rupert.—The Rupert & Northeastern Railroad Co. is chartered to build a line from Rupert to Fenwick, W. Va., about 25 miles; capital \$5000; headquarters, Boston, Mass.; incorporators, H. L. Higginson, Josiah F. Hill, H. L. Shattuck, Seth T. Gano and C. A. Ellis of Boston. It appears that the Gaudy Coal Land Co., 50 State St., Boston, is interested.

W. Va., Bluefield.—B. M. Cohen of Bluefield and others are reported considering plans to build an electric railway from Bluefield to Princeton, W. Va., about 10 miles.

W. Va., Gardner.—The Bluestone Land & Lumber Co. is reported building a railroad several miles long from Gardner to timber land on the Bluestone River.

## STREET RAILWAYS

Mo., St. Louis.—The United Railways Co., it is announced, has completed its extension to Jennings, a suburb.

# MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

**Abattoir and Refrigerating Plant.**—City Council, Columbia, S. C., will receive bids until 10 A. M. January 9 for furnishing and erecting machinery and equipment in whole for abattoir and refrigerating plant on city property; provide for 70 animals per day of 12 hours, 50 per cent. of which shall be cattle and 50 per cent. hogs, sheep and calves; plant to be installed in building to be erected by city, complete plans for which are to be submitted by successful contractor; general specifications furnished at office of R. J. Blalock, council superintendent department of health, but bidders are expected to submit their own plans and detailed specifications, which must include requirements and guarantees mentioned in general specifications; certified check \$500.

**Air Compressor, etc.**—Proposals received at Office of General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 10:30 A. M. December 26, and then opened, for furnishing air compressor, steel plates, steel cable, soil pipe, stovepipe, flues, grease cups, scythes, padlocks, fire hose, packing, emery cloth, sponges, mats, refrigerators, chairs, lye, pitch, putty, white zinc, shellac, red lead, etc. Blanks and general information relating to this circular (No. 668) may be obtained from this office, or offices of assistant purchasing agents, 24 State St., New York; 614 Whitney-Central Bldg., New Orleans; also from U. S. Engineer offices in Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, Chicago, St. Louis, Detroit, Milwaukee, St. Paul, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City; Chamber of Commerce, Quincy, Ill. F. C. Boggs, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

**Aluminum-extraction Machinery.**—Robt. L. Steele, president of Steele's Mills, Rockingham, N. C., wants information on extraction of aluminum from kaolin deposits, and prices on machinery to be electrically operated.

**Boiler.**—See "Vinegar Factory Equipment."

**Boilers.**—See "Bottling Plant Equipment."

**Boiler.**—Tifton Ice & Power Co., L. P. Thurman, secretary, Tifton, Ga., wants prices on 125 to 150-horse-power boiler.

**Bottling Machinery.**—See "Vinegar Factory Equipment."

**Bottling Equipment.**—Audubon Mineral Water Co., Maysville, Ky., wants prices on bottling machinery, including boilers, engines, pumps, cases, split or quart bottles, caps, labels, paper, straw wrappers, etc.

**Bridge.**—Department of Public Improvements, Sub-Department of City Engineer, H. K. McCay, Baltimore, Md. Proposals, addressed to Board of Awards, care of City Register, received by City Register at his office, City Hall, until 11 A. M. December 27 to remove Warren truss bridge and construct and erect steel plate girder bridge in South Monroe St., over Baltimore & Ohio Railroad tracks; foundations will be installed by this department and be ready about May 1. Specifications, proposal sheets and plans

N. C., Asheville.—The Asheville Electric Co., says a report, will extend the Charlotte Street line to the site of the proposed Grove Hotel.

N. C., Hendersonville.—The Hendersonville Traction Co., V. L. Norman, lessee, is reported to have completed an extension of one mile to Columbia Park.

S. C., Rock Hill.—The Carolina Traction Co. is reported to have completed its line to Highland Park Mill, about two and one-half miles.

Tex., Denison.—The Texas Traction Co. is reported to have made a proposition to build a street-car line to the southern and south-eastern parts of Denison. J. F. Strickland, Dallas, Tex., is president.

Tex., San Antonio.—W. B. Tuttle, general manager of the San Antonio Traction Co., is reported saying that construction will begin on an extension to Los Angeles Heights as soon as the City Council grants the franchise.

furnished upon application to this office and deposit of \$5, which amount will be returned, provided plans are returned not later than December 20; proposals received separately for wrecking and purchasing old bridge, but preference will be given to bidder proposing to wreck, purchase old bridge and erect new bridge; certified check \$500.

**Bridge Construction.**—Rowan and Davie County Commissioners, R. B. Beard, chairman, Rowan County Commissioners, Salisbury, N. C., will receive bids in 60 days to construct bridge across South River; cost about \$6000; structure about 450 feet long, 12 to 16 feet wide; C. E. Miller, engineer in charge, Salisbury.

**Bridge Construction.**—C. J. McKenna, County Auditor, Fort Worth, Tex., will receive bids until 10 A. M. December 23 for construction of steel bridge across Finley's branch, on Fort Worth and Weatherford road, 2½ miles from Benbrook; 30-foot span, 14 feet wide, rest on concrete head ends 12 feet high, same being 2½x14 feet at base and tapering to 15 inches by 14 feet at top, with two four-foot and two six-foot wing walls; county will provide and pay for hauling all parts of span from depot at Benbrook to location of bridge, furnish cement, sand, gravel, lumber and nails for flooring and build approaches.

**Bridges.**—P. St. J. Wilson, State Highway Commissioner, Richmond, Va., receives bids until noon January 1 to construct two steel bridges in Amherst county; one across Pedlar River, to have two standard 80-foot spans, and the other across Harris Creek, one standard 70-foot span; concrete substructures; plans and specifications on file with County Clerk.

**Building Materials, etc.**—Day & Zimmermann, Philadelphia, Pa., will want bids on following for building of Hess-Bright Manufacturing Co. at Front and Erie Aves., Philadelphia, Pa.: Grading, excavation, concrete work, cement floors, stone, structural steel, steel sash, skylights, plumbing, brick, bricklaying, steel vault doors, roofing, heating, plastering, painting, post caps, hangers, etc.; mill work, carpentering, hardware, cement, lime, sand, wood paving blocks, ornamental terra-cotta work, book tile, reinforced steel.

**Building Materials.**—J. H. Meyer, architect, Jackson, Miss., wants estimates on terra-cotta, stone, enameled and pressed brick, sheet metal window frames and maple flooring.

**Building Materials.**—B. G. Klodt, 523 Gunter Bldg., San Antonio, Tex., wants prices on building materials; invites sub-bids on all materials entering into contracts for post-offices at Paragould, Ark., and Miami, Fla.

**Building Material.**—Harris Bros., Box 1558, Muskogee, Okla., want prices on building materials.

**Building Materials.**—B. E. & L. H. Grandy, Pickens, S. C., want to correspond with dealers in second-hand steel beams, cast iron, plate and prism glass.

**Building Materials.**—T. A. Poehlman, 942 Frederick Rd. ext., Baltimore, Md., wants prices on vacuum cleaning machine (sta-

tionary plant), Spanish tile for roof, stucco, plastering, electric fixtures, furniture, lighting rods, etc.

**Buttons.**—R. B. Dwyer, 1115 S. Whipple St., Chicago, Ill., wants addresses of manufacturers who make and enamel small wood buttons, or addresses of enamelers of such buttons.

**Cannery Equipment.**—E. L. Lenker, Fairfield, Fla., wants quotations on canning machinery and supplies.

**Carbon Paper.**—See "Office Furniture and Supplies."

**Cardboard.**—See "Paper-box Machinery and Materials."

**Cars.**—H. H. George, Jr., Newsome, N. C., or 1831 Monument Ave., Richmond, Va., wants eight 1½-yard low-pitched rotary 36-inch-gauge dump cars for ballast quarry at Bald Mountain, N. C.

**Cars.**—Flint River & Northeastern Railroad, J. R. Hackett, general manager, Moultrie, Ga., will receive bids until and sign contracts after January 15 for passenger coaches.

**Coal Conveyors.**—Harlan Coal Co., L. W. Farmer, manager, Barboursville, Ky., will receive proposals at once for coal conveyors for mines.

**Concrete Mixer.**—D. J. Anderson, 716 N. Alcaney St., Pensacola, Fla., wants prices on concrete mixer.

**Contractors' Equipment.**—Harris Bros., Box 1558, Muskogee, Okla., want prices on contractors' equipment.

**Contractors' Machinery.**—D. J. Anderson, 716 N. Alcaney St., Pensacola, Fla., wants prices on contractors' machinery, including concrete mixer.

**Contractor.**—B. F. Brooke Sewall, Bakersville, N. C., wants to correspond with contractor who has made open cuts in hardest rock, is now at liberty, and is supplied with boiler, some drills (preferably No. 2 Rand) and hoisting engine.

**Chairs.**—See "Office Furniture and Supplies."

**Crescoted and Untreated Piles.**—Proposals received at office of General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 2:30 P. M. January 10, and then opened, for furnishing crescoted and untreated piles. Blanks and general information relating to this circular (No. 668-B) may be obtained from this office or offices of assistant purchasing agents, 24 State St., New York; 614 Whitney-Central Bldg., New Orleans; and from U. S. Engineer offices in Seattle, Chicago, St. Louis, Mobile and Galveston; Commercial Club, Kansas City; Chamber of Commerce and Board of Trade, Tacoma. F. C. Boggs, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

**Distilling Machinery.**—P. J. Biting, 613 W. 5th St., Winston-Salem, N. C., wants addresses of manufacturers of machinery to make wood alcohol.

**Dredging.**—Baltimore (Md.) Board of Awards will receive bids at office of City Register, City Hall, until 11 A. M. December 27 for dredging upper harbor; approximate cost, \$15,000; certified check, \$1000; for specifications apply at Harbor Board office; O. F. Lackey, Harbor Engineer.

**Elastic.**—American Garter Co., 229 First Ave., Birmingham, Ala., wants samples and prices on elastic for garters and suspenders.

**Electric Wiring.**—See "Heating Plant, etc."

**Electric Wiring, etc.**—J. W. Housell & Co., Moultrie, Ga., want bids on electric wiring and fixtures for \$16,000 church building.

**Electric Fixtures.**—See "Building Materials."

**Electrical Articles.**—M. H. B. Overvoorde and A. Van Der Tak, 56 Rue Du Stade, Athens, Greece, want prices, terms, etc., on electrical articles; view to representation.

**Electrical Equipment.**—Dr. J. M. Thompson, Mason, Tex., will want prices on electrical equipment for office building.

**Electric-light Plant.**—City of Kiefer, Okla., receives bids about January 15 for material for electric-light plant; Benham Engineering Co., 12 American National Bank Bldg., Oklahoma City, Okla., engineer in charge.

**Envelope Machinery.**—Lettervelup Co., 510 Barrister Bldg., 7th St. N. W., Washington, D. C., wants information and prices on machinery for making and folding envelopes.

**Elevators.**—Mar-Del Mobile Co., R. J. W. Hamill, general manager, The Garage, Mt. Royal Ave. and Charles St., Baltimore, Md., will want prices on elevators for handling motor trucks 30 feet long and about 10 feet wide.



**Engines.**—See "Bottling Plant Equipment."

**Engraving Machinery.**—Southwestern Engraving Co., Charles W. Fear, secretary, Frisco Bldg., Joplin, Mo., wants information and prices on engraving and etching machinery and supplies for engraving plant.

**Envelopes.**—Cohutta Tale Co., Dalton, Ga., wants addresses of manufacturers of cheap envelopes for mailing samples of talcum powder.

**Excelsior Machinery.**—H. D. McLeod, Matthews, N. C., wants prices on excelsior machinery.

**Excelsior Machinery.**—J. F. Willson, Tampa, Fla., wants catalogues and prices on excelsior machinery.

**Fire-escapes, etc.**—C. F. Overmyer, 48th St., Norfolk, Va., wants prices on fire-escapes, two iron stoops and six iron stairways for back porches.

**Fire Extinguishers.**—Town of Brevard, N. C., wants hand fire extinguishers; C. M. Poyle, fire chief.

**Flour Mill.**—Will Ellebracht, Mason, Tex., will receive bids on second-hand flour mill; operated by gasoline engine.

**Galvanized Nails.**—See "Slaters' Tools, etc."

**Gas Engine.**—Justin Matthews, care E. Van Winkle Gin and Machine Works, Mann Bldg., Little Rock, Ark., wants 25-horsepower gas engine for natural gas consumption.

**Gasoline Engine.**—Will Ellebracht, Mason, Tex., will want prices on second-hand gasoline engine.

**Gasoline Engines.**—H. B. Wood, 709 Empire Bldg., Birmingham, Ala., wants prices on small gasoline engine. (See "Wheels, etc.")

**Grab Bucket.**—Nashville-Gallatin Interurban Railway, Stahlman Bldg., Nashville, Tenn., may want small grab bucket for unloading gravel.

**Heating Plant.**—C. F. Overmyer, 48th St., Norfolk, Va., wants prices on steam-heating plant.

**Heating Plant.**—School Board, W. E. Womble, secretary, Womble, Ark., wants prices on heating plant for \$700 school building.

**Heating Plant.**—M. P. Kelly, Gainesville, Tex., will let contract in 93 days for heating plant for \$22,500 church building.

**Heating Plant, etc.**—Sanguinet, Staats & Barnes, architects, Houston, Tex., will receive bids until noon December 23 for heating, plumbing and wiring two-story fireproof building to be erected at Houston Heights, Tex., for Southwestern Telegraph & Telephone Co., main office Dallas, Tex.; certified check for 10 per cent. of bid to accompany each bid. (See "Telephone Systems" under Construction News.)

**Heating Plant.**—Jordan Munn Construction Co., Greenville, S. C., wants prices on heating plant.

**Holst.**—Nashville-Gallatin Interurban Railway, Stahlman Bldg., Nashville, Tenn., wants second-hand steam hoist on trucks; about three tons capacity; boom of sufficient length to handle 70-pound rail.

**Hoisting Machinery.**—D. J. Anderson, 716 N. Alcahey St., Pensacola, Fla., wants prices on hoist and hoisting machinery.

**Kaolin Machinery.**—See "Aluminum-extraction Machinery."

**Lamps.**—P. Crockett, Elmore, Ga., wants addresses of manufacturers of oil-burning automobile lamps; wants two lamps.

**Levee Construction.**—Bids will be received for construction of 2,000,000 yards levee work, located on Red River, near Texarkana, Ark.; mostly piecework, 5 to 12 feet high; for further information address R. L. Cheshire, Huggins House, Texarkana; Lawrence Bros. and R. L. Leonard, Memphis, Tenn., or S. M. Bush, Camden, Ark.

**Lighting Rods.**—See "Building Materials."

**Locomotive.**—H. Prime Kleffer, 50 Church St., New York, wants small and light-gauged locomotive; second-hand; 24-inch gauge; price within \$600; delivery near New York city.

**Locomotives.**—Flint River & Northeastern Railroad, J. R. Hackett, general manager, Moultrie, Ga., will receive bids until and sign contracts after January 15 for engines.

**Logging Equipment.**—See "Sawmill, etc."

**Metal Tubing, etc.**—J. W. Hoopes, Den-high, Va., wants to correspond with handlers of supplies for model making, such as steel and brass tubing; fiber sheet tubing up to 2½ inches diameter, nickle wire, sheet plati-

num wire and sheet, mica sheet steel, brass sheet and brass and bronze spring wire; machine and wood screws (all sizes).

**Motor-car Parts.**—See "Wheels, etc."

**Motor Cars.**—J. Newton Johnston, Florence, S. C., wants prices on gasoline motor cars; capacity, 30 passengers each. (See "Rails, etc.")

**Naval Supplies.**—Navy Department, Pu- D. C., will receive bids until January 2 for ream of Supplies and Accounts, Washington, furnishing 5000 pounds of diphenylamine, 40 pounds of nitrate of crystals, etc., schedule 4188; 8 high-pressure gauges, 1 hydraulic steel pump, miscellaneous lot of safety valves, springs, etc.; 880 pounds of sheet brass, miscellaneous lot of brass and copper pipe, 800 pounds of bronze naval tubing, 4800 pounds of steel tubing, schedule 4189; one turntable, schedule 4181; delivery Navy-yard, Washington, D. C.; also until January 9 for 4053 feet of magnesium pipe covering, schedule 4194; miscellaneous lot of composition pipe fittings, schedule, 4193; delivery Navy-yard, Norfolk, Va.; also until January 9 for furnishing one motor-driven knife grinder, schedule 4184; delivery Navy-yard, Charleston, S. C.; for schedules, apply navy pay office nearest navy-yard.

**Paper-box Machinery and Materials.**—J. E. Gay, Box 267, Suffolk, Va., wants samples, catalogues and prices on paper-box machinery; also cardboard and other materials for making boxes.

**Paving, etc.**—Sealed proposals received at office of undersigned, Johnson City, Tenn., until 7 P. M. February 1 for constructing bridges, sewers, storm-water drains, concrete curb and gutter and street paving with brick, asphalt, bitulithite, wood block, granite or concrete, for improvement district No. 9, according to plans and specifications in the office of the City Engineer; approximate quantities, 600 cubic yards excavation; 5900 square yards street paving; 2900 linear feet curb and gutter; 1350 linear feet 6-inch sewer connections; 140 linear feet 12-inch terra-cotta drains; 2 catch-basins; 100 cubic yards reinforced concrete to cover creek 28 feet wide; certified check 10 per cent. of amount of bid; usual rights reserved; bids opened at regular meeting of Council; P. F. McDonald, City Commissioner; Wm. R. Ponder, Recorder.

**Paving.**—Duval County Commissioners, Jacksonville, Fla., will receive bids until 10 A. M. December 29 for furnishing material and constructing vitrified brick, concrete and asphalt macadam pavements on New York Ave. from point near Yukon to county line; also on John Anderson highway from Loretta to county line; specifications and other data on application to Gail L. Barnard, County Engineer. Address bids to C. W. Ellis, chairman of board.

**Paving.**—R. N. Bond, chairman Street Commission, Brownsville, Tenn., will receive bids until 1 P. M. December 27 for grading and graveling certain streets; specifications on file with City Recorder; certified check \$250.

**Paving.**—Board of Commissioners, Mobile, Ala., will receive bids until noon January 5 for 2180 square yards asphalt paving and 2408 linear feet granite curbing; also 33,750 square yards wood block paving and 17,530 linear feet granite curbing; specifications and other information may be had from Wright Smith, City Engineer.

**Paving.**—John Skain, Mayor, Lexington, Ky., will receive bids until 10 A. M. December 23 for construction of South Limestone St. from Winslow St. to Virginia Ave. and Water St. from Limestone St. to Broadway with vitrified brick, asphalt and cressed wooden blocks; also for resurfacing with asphalt over present brick paving of West 3d St. from Jefferson to Henry St.; certified check \$500.

**Paving.**—City of Binghamton, Tenn., will open bids about January 1 for grading, graveling, gutters, curbing and sidewalks costing about \$15,000; H. N. Pharr, Memphis, Tenn., engineer in charge.

**Paving.**—City of Crowley, La., will receive bids until December 22 for construction of 33,000 square yards concrete cross-ings; R. J. Boudreaux, City Clerk.

**Pipe-cutting Machinery.**—M. P., care Manufacturers Record, branch office, 52 Broadway, New York, wants 12-inch power pipe-cutting machine; second-hand, good condition.

**Plumbing.**—J. W. Houseal & Co., Moultrie, Ga., want bids from sub-contractors on plumbing for \$16,000 church building.

**Plumbing.**—See "Heating Plant, etc."

**Plumbing.**—Jordan Munn Construction Co., Greenville, S. C., wants prices on plumbing.

**Pump.**—Ernest D. Levering, 210 Hughes

Ave., Baltimore, Md., wants prices on hand or power pump for artesian well.

**Pumps.**—See "Bottling Plant Equipment."

**Rails, etc.**—J. Newton Johnston, Florence, S. C., wants prices on 200 tons steel girder rails; also gasoline motor cars; for urban passenger railway.

**Rails.**—Huettel Coal & Coke Co., Norton, Va., wants one to two cars new or second-hand 16-pound mine rails, prompt delivery. Give quotations delivered Norton.

**Rail.**—Shearwood Railway Co., J. N. Shearwood, president, Brooklet, Ga., wants prices on 7½ miles of 50-pound rail.

**Rails.**—Wayne Heading Co., O. D. Cleveland, manager, Malden, Mo., wants three miles steel relaying rail.

**Railroad Construction, etc.**—Flint River & Northeastern Railroad, J. R. Hackett, general superintendent, Moultrie, Ga., will receive bids until and sign contracts after January 15 for 24 miles of 60-pound rails, taking up and laying new rails, grading new roadbed and full equipment for new line.

**Recess Cover Seats.**—Seated proposals received at office of General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 10:30 A. M. January 3, and then opened, for furnishing recess cover seats for crank-gear machinery chamber recess covers. Blanks and general information relating to this circular (No. 667) may be obtained from this office or offices of assistant purchasing agents, 24 State St., New York; 614 Whitney-Central Bldg., New Orleans, and 1086 North Point St., San Francisco; also from U. S. Engineer offices in the following cities: Seattle, Los Angeles, Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, Chicago, St. Louis, Detroit, Milwaukee, St. Paul, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City; Chamber of Commerce, Quincy, and Commercial Club, Tacoma. P. C. Boggs, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

**Road Construction.**—Monroe County Judge, Tompkinsville, Ky., will receive bids until 1 P. M. December 29 for construction of four miles of road from Tompkinsville toward Cumberland River; certified check \$200, payable to B. L. Bradshaw, chairman Road Commissioners; plans and specifications may be seen and blank proposal forms obtained from County Judge.

**Road Construction.**—Board of Walton County Commissioners, De Funiak Springs, Fla., will receive bids until noon January 15 for constructing 60 miles of sand and clay highway in township 3 north, ranges 18, 19, 20, 21, 22 and 23 west, according to plans and specifications on file in clerk's office; certified check for \$50; usual rights reserved; Charles H. Gordon, clerk.

**Road Preservation.**—Valley Turnpike Co., H. F. Byrd, president, Winchester, Va., wants immediate estimates on bituminous road preservation.

**Rock or Gravel.**—Caddo parish, Louisiana, will want by April 50,000 to 60,000 tons hard rock or gravel suitable for surfacing roads, and will probably require 300,000 tons in next five years; bids invited for furnishing material, either in pit or quarry, or on board cars. Address I. T. Belien, parish engineer, Shreveport, La.; samples desired.

**Safe.**—Holland Realty & Insurance Co., Gastonia, N. C., wants prices on safe.

**Safe, etc.**—Farmers and Merchants' Bank, Brewton, Ala., wants prices on safe, vault and other bank fixtures.

**Safe.**—Charles K. Becker, 420 N. Carey St., Baltimore, Md., will want price on safe.

**Sawmill.**—See "Woodworking Machinery."

**Sawmill, etc.**—D. E. Dexter, Orange, Mass., wants band mill and logging outfit complete for 50,000 to 60,000 feet daily capacity; second-hand in good condition.

**School Furnishings.**—School Board, W. E. Womble, secretary, Womble, Ark., wants prices on desks, blackboards, bell, etc.

**Screws.**—See "Metal Tubing, etc."

**Sewer Construction.**—Board of Commissioners, Mobile, Ala., will receive bids until noon January 5 for construction of about 22,000 feet terra-cotta and concrete storm sewers, 6 inches to 6 feet in diameter, and appurtenances; specifications and other information may be had from Wright Smith, City Engineer.

**Sewers and Disposal Plant.**—Sealed proposals received by City Council of Union Springs, Ala., until 11 A. M. January 4 for construction of sanitary sewerage system and disposal plant complete; about 11 miles of 6-inch to 15-inch pipe sewers and appurtenances; plans and specifications on file with P. L. Cowan, City Clerk, and in office

of engineer, Attalla, Ala.; specifications will be mailed from either office on application; drawings can be obtained from engineer on deposit of \$2; S. P. Ralnor, Mayor; William Hill, engineer, Attalla, Ala.

**Signs.**—G. M. Davis & Son, Laurel and 5th Sts., Palatka, Fla., want indestructible advertising signs about 14x20 inches. Send samples and quotations.

**Slaters' Tools, etc.**—Chattanooga Builders' Supply Co., Porter Warner, manager, Chattanooga, Tenn., wants addresses of manufacturers of slaters' galvanized nails and slaters' tools.

**Stairways.**—See "Fire-escapes, etc."

**Steel Lockers.**—Fifth Regiment Infantry, E. E. Pomeroy, Colonel, National Guard of Georgia, 923 Atlanta National Bank Bldg., Atlanta, Ga., will probably want 300 steel lockers in January.

**Steel Tank and Tower, etc.**—Washington County Commissioners, Chantam, Ala., will receive bids at January term of court for erection of steel tank and tower, 12-horsepower boiler with four-horsepower engine, brick boiler-house, water closet with six porcelain stools, three radiators for jail, all necessary pipe connections to courthouse and jail, water trough and about 1200 feet six-inch sewer pipe; plans and specifications on file with D. J. Long, judge of probate.

**Stump Pullers.**—National Orchard Co., W. R. McDuffie, vice-president, Florida, Ala., wants prices on stump movers.

**Trucks.**—D. E. Dexter, Orange, Mass., wants 60 trucks for drykln use on 12, 16 or 20-pound rails; second-hand in good condition.

**Vacuum Cleaning Machine.**—See "Building Materials."

**Vinegar Factory Equipment.**—A. Braun Manufacturing Co., A. Braun, president, 604 Gratest St., St. Louis, Mo., will open bids March 1 for installing 60-horsepower boiler, heater, pump, electric generator, bottle filling, labeling and corking machines.

**Water-works.**—Sealed proposals received by Mayor and Board of Commissioners, Alhambra, N. C., until 8 P. M. January 16 for constructing water-works; pumping station, clear-water basin, deep well, two motor-driven turbine pumps, 750 gallons per minute each, switchboard and one mile of pole line, tower and tank and about five miles of 6 to 10-inch pipe line; plans and specifications on file at office of Mayor and of engineer in Charlotte, N. C.; copies of specifications, bidding blanks, etc., may be obtained from engineer; certified check for not less than 5 per cent. of amount of bid; usual rights reserved; Gilbert C. White, engineer, Charlotte, N. C.; M. J. Harris, Mayor.

**Water-works Material.**—City of Kingfisher, Okla., receives bids about January 15 for material for water-works; Benham Engineering Co., 812 American National Bank Bldg., Oklahoma City, Okla., engineer in charge.

**Water-works and Material.**—City of Jesup, Ga., receives bids until 11 A. M. December 22 for constructing water-works; specifications not printed; manufacturers will submit detailed specifications with proposals; certified check for 5 per cent.; usual rights reserved; all bids to be f. o. b. cars at Jesup; payments, 50 per cent. when received, 25 per cent. when erected and 25 per cent. when tested and accepted; proposes purchase following separately: steel tower and tank, 80,000 gallons capacity, 120 feet to top of tank; foundations built by city; 20 tons 10-inch, 110 tons 8-inch and 160 tons of 6-inch cast-iron pipe and 6 tons of specials; specifications of American Water-works Association for class B pipe; 33 fire hydrants, two-way fire hydrants, for two-foot bury; two 1-inch, 20 8-inch, 9 6-inch gate valves and 31 valve boxes for 16 to 24-inch cover; alternator, 75 kilowatts, three phase, 60 cycles, 230 volts, 900 revolutions per minute, with belt exciter; pulley for belt connected with engine; switchboard and instruments; constant current regulator, 8 kilowatts, 4 amperes, 300 volts, 60 cycles, with controlling panel for street series incandescent lighting system; high-pressure duplex double-acting fire pump, suction lift 15 feet; delivery pressure, 100 pounds; steam, 90 pounds; capacity, 500 gallons per minute at 100 foot piston speed; water cylinders to be brass lined and rods of Tobin bronze; 4½x3½x5 duplex feed pump; centrifugal pump, belt driven, capacity 150 gallons per minute against 150 head; straight-line, single-cylinder, 10x8-inch, belt-driven air compressor; alternate proposals received on centrifugal pump directly connected to electric motor; construction work consists in laying water mains furnished by city, furnishing all material and constructing reinforced concrete basin, 40 feet in diameter, 11 feet deep, and foundation for tank; bidders must examine local conditions; plans

and specifications on file at office of James Steele, clerk; Arthur New, engineer in charge.

**Well-drilling Machinery.**—Horner Bros. Company, Oxford, N. C., wants machine to bore well 2 feet to 2½ feet diameter and 20 to 40 feet deep. (Recent notice incorrect.)

**Wheels, etc.**—H. B. Wood, 709 Empire Bldg., Birmingham, Ala., wants to correspond with manufacturers of wheels; also other parts for making one and two-horse-power motor cars for boys.

**Wire.**—See "Metal Tubing, etc."

**Wire Fencing.**—National Orchard Co., W. R. McDuffie, vice-president, Florida, Ala., wants prices on wire fencing for orchard of 2000 acres.

**Wireless Telegraph.**—Office of Chief Signal Officer, R. J. Burt, disbursing officer, War Department, Washington, D. C., will receive bids until December 28 for furnishing two reserve wireless telegraph sending sets

in accordance with signal corps specifications Nos. 525, 410-A (part A dated May 9, 1909, and part D dated June 14, 1910), and drawings 549-1, 553a-1, 553b-1, 555-1, 560-4, 562-2, 569-1 and 999, without storage batteries and 1 inspector's pocket kits; Leyden tubes for these sets will be furnished by Signal Corps, United States Army.

**Wood Enameling.**—See "Buttons."

**Woodworking Machinery.**—Arthur N. Dickson, Napton, Mo., wants sawmill, planers and veneering machinery; also machinery to manufacture staves, spokes and handles.

**Woodworking Machinery.**—Presbyterian Orphans' Home, Rev. W. T. Walker, superintendent, Barlum Springs, N. C., wants prices on equipment for small woodworking shop.

**Woodworking Machinery.**—John W. Reynolds, Erin, Tenn., wants medium-sized second-hand planer and matcher; also light resaw machine.

The soda method is largely overcome. The silicate-caustic soda process consists in adding an aqueous solution of a metal substituted base wherein a metal has replaced hydrogen until the fatty acids present in the oil are neutralized, agitating the mixture at an elevated temperature, adding an aqueous solution of an alkaline hydroxide, agitating the mixture at a temperature of 75 to 90 degrees F., maintaining that temperature until the test sample shows the required color; then adding additional alkaline hydroxide until in a test sample removed and heated to 120 to 140 degrees F. the soap stock precipitate separates rapidly and completely from the oil. After this test has been successfully made, the mass of treated oil from which the sample was taken is heated to between 100 degrees and 120 degrees F., such heating being continuous until the soap stock settles completely from the oil.

#### The New Encyclopedia Americana.

The new 1911 edition of the Encyclopedia Americana, edited by Frederick Converse Beach of the Scientific American, consists of 22 volumes, containing 2540 illustrations, 126 color plates, 160 maps, and treats of 65,280 special subjects and articles contributed by 2387 noted editors and writers who are specialists on the subjects treated. The paper on which this edition is printed is opaque, yet so thin that each volume is only one inch thick as compared with three inches of the old-style volume. Points of value claimed for the Encyclopedia Americana are that it is authoritative and complete, that the definitions are given so that they can be easily understood, and that technical subjects are simplified so that the reader who seeks information in its columns is certain to find it. The entire set of 22 volumes takes up but little space, and is compactly shelved in a handsome bookcase which is given free with every order for the set during December. A sample-page descriptive booklet of the encyclopedia has been prepared and will be mailed upon request made to the Scientific American, Compiling Department, 225 Fifth Ave., New York.

#### Quick Process for Curing Concrete.

Referring to their quick process for curing concrete sewer pipe and drain tile by means of steam under high pressure, W. A. Reynolds & Son of Asheville, N. C., write to the Manufacturers Record in part as follows: "We have reduced the time of curing to eight hours from the time the pipe is tamped and mold removed, so that the pipe is hard and solid, ready for the ditch or to be loaded for shipment. We tested a piece of 24x34-inch bell-end sewer pipe, shell two inches thick, made from granite dust and Portland cement. It was 18 hours old and carried a load of 9908 pounds before cracking. By this process a plant can be run winter and summer. The products are tamped up one day and are ready for delivery the next. The process is beyond the experimental stage, and we have a plant in Asheville which has been running several months. We have manufactured more than 100 carloads of pipe of all sizes from 12 to 36 inches in diameter. We would be pleased to have any of your readers visit our plant and will take pleasure in showing them through and explaining the process in detail. Small samples will be sent free to interested persons on request."

#### Standard Blower & Metal Manufacturing Co.

The Standard Blower & Metal Manufacturing Co. of Atlanta has merged its business with the South Atlantic Blow Pipe & Sheet Metal Co. One of its factories is already in operation at Jacksonville, the company will continue the present plant in Atlanta, and after January 1 will occupy the building and grounds now being used by the Savannah Blow Pipe Co. of Savannah, Ga. These buildings are to be improved and a full equipment of machinery installed for the manufacture of blower systems and for general sheet-iron work. The company will then have three fully-equipped factories in the South, the geographical location of which will place it in a position to fill all orders promptly. Modern low and high speed systems will be designed and built to meet the requirements of the different woodworking plants; also complete heating and ventilating systems where blowers are used, and systems for handling dusty refuse from fertilizing factories, cotton mills, etc. Various sizes of steel and sheet-iron tanks will be built. Mr. T. H. McMillan, president of the South Atlantic Blow Pipe & Sheet Metal Co., has also become president of the Standard Blow Pipe & Metal Manufacturing Co., and will devote his time to this business, with offices at Savannah. Factories belonging to the two companies of

which he is president and of which H. J. Hinchey is manager are located in Atlanta, Savannah, Jacksonville, Pensacola, Mobile and Fayetteville, N. C.

#### Special Offers in Machinery Sales by E. C. Sherwood.

Among the numerous opportunities offered for purchase of machinery, equipment, relaying rails, etc., by E. C. Sherwood, 46 Church St., New York, two particularly attractive offers are made in our advertising columns of this issue. One is an aerial tramway 11,800 feet long, hourly capacity of 60 tons. This double-rope tramway was built by John A. Roebbing's Sons Company in June, 1910, and has been handling cement and sand. It is offered for sale on account of the completion of the contract work on which it has been engaged. It can be seen in operation at High Falls, Ulster county, New York. The plant includes a Flory double-cylinder engine, 140 carriages, complete, and tip buckets of 10 cubic feet capacity, with switch rails at terminals, counterweight ropes, anchor irons, etc. The other special offer is that of a power plant, which can also be seen at High Falls. This plant includes eight Ingersoll-Rand steam-driven Corliss air compressors, after-coolers, air receivers and reheaters; one Wheeler barometric condenser, complete; four 250-horse-power Stirling water-tube boilers and two 375-horse-power Heine safety boilers.

#### Inspect the American Rolling Mill Co.'s Plant.

The American Rolling Mill Co. recently entertained the members of the National Corrugated Culvert Association at its works in Middletown, O., following the annual convention of that body in Chicago. The attending delegates were taken to Middletown in special cars, conveyed to the company's works in automobiles, and escorted through both the Central and the great East Side Works, where opportunity was given them to observe the manufacture of iron and steel in the most up-to-date manner. After inspecting the mills, and also the research laboratory, which is one of the important features of this plant, the party went to the Elks' Temple, where a banquet was tendered them, at which several excellent addresses were delivered. The speakers were John S. Beall, president, and Ray Frazer, secretary of the National Corrugated Culvert Association; R. C. Phillips, secretary, and G. H. Charls, assistant secretary of the American Rolling Mill Co. The association is composed of manufacturers of metal culverts, who use American ingot iron exclusively for this purpose, and because of the great purity and rust-resisting properties of this iron, and their efforts to effect its universal adoption in the form of metal culverts, a powerful influence for good has been wielded for this rapidly growing industry.

#### TRADE LITERATURE.

##### W. L. Van Duzer's 1912 Calendar.

A handsomely mounted and illustrated calendar for 1912, 15x23 inches has been issued by W. L. Van Duzer of Kissimmee and Orlando, Fla. Mr. Van Duzer deals extensively in Florida real estate, including the "Prosper Colony Farms."

##### The Draper Co.'s 1912 Calendar.

A bird's-eye view of Draper Company cottages at Hopdale, Mass., and a view of the Northrop loom manufactured by the company form the illustration for the Draper Company's 1912 calendar. Each month comprises three sheets of the calendar, two of which are convenient for daily memoranda.

##### Troy Bottom-Dump Wagons.

The economical and other advantages pertaining to the use of Troy dump wagons, especially as regards the efficiency of the horses used in operating them, is noted in a folder recently issued by the company, entitled "Make Your Team a Team and a Half." The advantage of the low-body is also noted on account of the increased efficiency obtained from the men who are required to fill the body with shovels. This folder will be sent on request to the Troy Wagon Works Co., Troy, O.

##### "Handshake" by the Genuine Bangor Slate Co.

"Handshake No. 21," issued by the Genuine Bangor Slate Co., Easton, Pa., contains information and anecdotes of interest to roofers and those contemplating building. This company issues several pamphlets devoted to roofing and other uses of slate products. These pamphlets are intended for distribution by local dealers among prospective customers, and will be provided by the company with the name and address of the dealer on

## INDUSTRIAL NEWS OF INTEREST

### Position as Office or Credit Manager Wanted.

An experienced office and credit man, giving best references for ability to render satisfactory service, advertises in our columns for a position as office or credit manager in a Southern or Southwestern city.

### Wants Position and to Invest \$125,000.

A university graduate with experience in business matters, patent litigation, salesmanship, etc., notes in our financial advertising columns that he desires a position in a well-established manufacturing company. He states that he can invest about \$125,000 in the company with which he may become engaged.

### Souvenir of Hoyt's Flintstone Belting

A neat and useful desk clamp for correspondence papers, etc., is being sent out as a souvenir by the Estate of Edward R. Ladew, 82 Fulton St., New York, manufacturer of Hoyt's pure oak-tanned "Flintstone" short-lap leather belting. The thumbpiece of the clamp consists of a disk on which is imprinted the well-known trade mark of this company, representing the world as the field for Hoyt's "Flintstone" belting.

### A Large Factory Building for Sale or Lease.

A two-story factory building, 200x60 feet, of brick construction, giving total floor space of 39,000 square feet, together with a 150-horse-power Corliss engine, two boilers, an automatic sprinkling system, power, light, heat and water, is offered in our advertising columns for lease or sale on easy terms. The building is located on a site 385x200 feet, with abundant labor nearby, and is accessible to electric cars, railroad and steamboat lines.

### Seofield Engineering Co., Consulting Engineers.

A special committee of the Board of Chosen Freeholders of Atlantic County, New Jersey, has selected the Seofield Engineering Co. of Philadelphia as special consulting engineers in connection with the steel bridge to be constructed on Albany Ave., Atlantic City. Plans and specifications for the bridge have been completed and the contract for the work will be let at an early date. This company acts as consulting engineer for power plants, hydraulic developments and electric railways and also makes investigations and reports on power-plant economies, etc.

### Pipe and Contractors' Supply Co.

The Pipe & Contractors' Supply Co., 3 Dover St., New York, with warehouse and railroad yard at Long Island City, has recently been incorporated. This company will handle and deal in all classes of contractors' supplies and equipment, making a specialty of new and second-hand pipe, cut and threaded to order, boilers, engines, pumps, mine and quarry supplies, wire rope, cars and rails. The incorporators are M. Paltrowitz, Arthur Daniels and David Harris. Mr. Paltrowitz was one of the organizers of the Marine Metal & Supply Co. of New York, and has had wide experience in selecting and handling pipe.

### The Savannah Blow Pipe & Exhaust Co.'s New Plant.

To meet the demands of its increasing business the Savannah Blow Pipe & Exhaust Co. of Savannah will occupy its new plant on January 1, consisting of substantial brick buildings with ample space for its requirements. J. P. Wueless, who was for nine

years vice-president and general manager, is now president and general manager of the company. C. A. Ryerson, an experienced designer of systems for handling shavings and refuse of all kinds and of heating and ventilating systems, is now associated with this company. Its territory extends to the States of North and South Carolina, Georgia, Florida and Alabama and parts of Tennessee, Mississippi and Louisiana.

### Sales of Ice and Refrigerating Machines.

The Henry Vogt Machine Co. of Louisville, manufacturers of ice and refrigerating machines, pipe bending and coiling, water-tube boilers, tanks, smokestacks, direct heat and steam dryers, etc., has made the following recent sales of its ice and refrigerating machines in the South: The machinery for a 15-ton ice plant for the Enterprise Ice & Feed Co., Louisville; a 20-ton refrigerating machine to H. Benner, Louisville; to Walter J. Korn of Sturgis, Ky., a 10-ton ice-making machine; to Alexander Bros., Cadiz, Ky., exhaust steam machine for combined electric and ice plant; to the Louisiana Pure Ice Co., Louisiana, Mo., a 10-ton ice-making machine. Many sales were made during the same period to companies in Indiana, Illinois, Pennsylvania and other States.

### Increasing Business of a Texas Contractor.

A. L. Gooch, formerly of North Texas, contractor in granite, limestone and for construction work, has recently erected large stone works at Austin, Tex. He purchased one-half block on E. 4th St. at a cost of several thousand dollars, and began business last June. His sales for the six months are reported to have reached \$35,000. He has secured the following Government contracts within the past few months: The San Marcos postoffice building, \$2250; the Waxahatchie postoffice, \$9000; the Victoria postoffice, \$5500; the Eagle Pass postoffice, \$1500; the Wichita Falls postoffice, \$5000; construction work at the Rice Institute, Houston, Tex., \$7000. He has one of the best-equipped plants for stone work in the State, and specializes in Texas red and gray-granites and Cedar Park limestone.

### Successful Sale of the Harrison Yarn & Dyeing Co.'s Property.

J. E. Conant & Co., auctioneers, Lowell, Mass., state that the recent sale of the properties of the Harrison Yarn & Dyeing Co. at Pawtucket, R. I., was a repetition of the success attained at the sales of the properties of the Rochdale Woolen Mills at Rochdale, Mass., last month, and of the Victor Knitting Mills Co. at Cohoes, New York, more recently. The attendance at such sales is constantly improving in numbers, and the purchasers are almost invariably the users of such machinery and property. Distance from sales is no longer considered, the Middle, Southern and Western States furnishing large quotas of buyers. Conant & Co. emphasize the fact that the sale was made exactly on schedule time, beginning promptly at 10 o'clock in the morning and ending at four o'clock in the afternoon on the specified date, without any deviation whatever from the original arrangements.

### Chisholm Process Oil Refining Co.

A process of refining cottonseed-oil has been invented and patented by Jessie C. Chisholm of Dallas, Tex., known as the silica-caustic soda process. The Chisholm Process Oil Refining Co. of Dallas, Tex., is the owner and lessee of this patent. By means of the process it is claimed that the loss of oil due to saponification in the caus-



the front page. Other aids provided by the trade help department of the slate company are noted in the "Handshake Series."

#### Hyatt Flexible Roller Bearings.

A folder postal card distributed by the Hyatt Roller Bearing Co., Newark, N. J., contains a graphical illustration of a car on which Hyatt flexible roller bearings are used, starting from its own weight down a grade of  $\frac{1}{2}$  of 1 per cent. This is shown in connection with a grade of 2 per cent., which is required for cars with plain bearings to start down grade from gravity alone. These two illustrations show in a convincing way the advantage of roller bearings in saving power and preventing wear. Interested persons are requested in this folder to write for Bulletin 604-D, treating fully of Hyatt flexible roller bearings, etc.

#### "Slaysman" Canmaking Machinery.

The automatic canmaking machinery, power presses, "Peerless" air compressors and other engineering specialties manufactured by Slaysman & Co., engineers and machinists, 801 E. Pratt St., Baltimore, are illustrated and described in the catalogue recently issued for distribution by the com-

pany. This company operates two large machine shops equipped with high-grade tools. The John Boyle Company of Baltimore states that during the busy season they manufactured in one day 411,350 cans on five lines of "Slaysman" machinery, and is now installing two more complete lines. The catalogue and any other information desired will be sent on request.

#### The International Harvester Co.'s 1912 Almanac and Calendars.

The I. H. C. almanac and encyclopedia for 1912 contains several special articles of value to farmers in addition to the general information contained. Among these articles are the following: "Economic History of the Original Thirteen States," "Seed Testing," "Rotation of Crops," "Alfalfa," "Up-to-date Dairying," "Sanitation in the Country," and other articles on beautifying the farm, irrigation, drainage, fertility, crop production, etc. Attractive calendars for 1912 bearing the names and illustrations of the various harvesters, farming machines and other agricultural implements manufactured by the International Harvester Co., Chicago, have been issued for distribution with the I. H. C. almanac and encyclopedia.

## MOTOR TRUCK AND TRACTOR NEWS

#### The Ohio Gasoline-Kerosene Tractor.

Tractors to be operated by gasoline or kerosene are manufactured by the Ohio Tractor Manufacturing Co., Marion, O., of 20, 30, 45 and 70 horse-power. These machines are also used as a combination tractor roller and as tractor hay balers. The advantages of this tractor and its various uses are described in a catalogue which will be sent on request.

#### The Knapp Farm Locomotive.

A farm tractor of convenient size and power for use on small farms is manufactured by W. Chandler Knapp, Rochester, N. Y., and is known as the Knapp Farm Locomotive. It is a three-wheel 35-horse-power machine of steel construction throughout, weighing 8100 pounds, and pulls three or four 14-inch plows. A catalogue with complete information will be sent on request.

#### Correspondence Course in Gas Traction Engineering.

The deep interest in cheaper, more profitable farming methods and larger crops has inspired the Hart-Parr Company, Charles City, Iowa, manufacturer of farm power machinery, etc., to prepare a course in gas traction engineering for the special benefit of farmers. This correspondence course in gas traction engineering demonstrates to each man that takes it the possibilities of power farming and the advantages obtained by the use of gas tractors. Full information regarding the methods pursued in this free instruction may be obtained on request to the company.

#### The "New Way" Farm Motors.

The 8 and 12 horse-power "New Way" air-cooled motors, manufactured by the "New Way" Motor Co., Lansing, Mich., are designed and fitted with belting, etc., to operate feed grinders, feed cutters, ensilage cutters, hay balers, corn shredders, corn shellers, threshing machinery, etc. This engine is mounted on a truck for convenience in transportation. In a test with an old-style corn sheller, the 12 horse-power "New Way" engine shelled 52 bushels of corn in 14 minutes. It is claimed that one of these engines will save its cost in an ordinary season's work. They are described and illustrated in catalogue "H," which will be sent on request.

#### "The Book of Gas Traction Engines."

The Gas Traction Co., Minneapolis, Minn., manufacturer of the "Big Four 30" traction engine for plowing, etc., has issued a book under the above title for distribution to persons interested in the use of traction engines. In referring to the "Big Four 30" traction engine it is stated that three of these engines with plows have averaged more than 100 acres a day, the three together turning a combined furrow width of 35 feet; that with these machines the engineer does not need to touch a hand to the steering wheel from one end of the field to the other, but can put in all his time looking after the plows, so that only one man is needed for each engine and set of plows.

#### The Lanth-Juergens Motor Car Co.

A large increase in the demand for Lanth-Juergens trucks of one, two and three tons capacity has made it necessary for the company to trouble its manufacturing facilities within the past six months. Plans have just

been completed for a building 250x60 feet, which is to be used for the assembling and body-building departments of its factory, Fremont, O. Another large building will be erected in the spring. Recent sales of this company include four one-ton and one two-ton trucks to Brinks Motor Express, Los Angeles, Cal., where they are used in transfer and express business. P. A. Brink of Los Angeles will be the agent for this company for the lower half of California. Other agencies established include the Mutual Auto Co. of Duluth for Northern Minnesota, and A. S. Lasselles & Co. of New York for the sale of these trucks in Australia.

#### Packard Trucks in Louisiana.

The Louisiana Manufacturing & Cooperage Co., New Orleans, in writing the Manufacturers Record regarding the use of its Packard motor truck, states that a load of molasses barrels more than double that previously carried on the largest horse-drawn vehicle is carried at much greater speed, and that an advantage of at least 25 per cent. is obtained from the use of this machine at this time of the year. During the summer months it would be greater, as any attempt at speeding with horse-drawn vehicles in the summer is out of question. It is a three-ton truck, and no trouble whatever has been experienced since it was purchased about two months ago. The extent of the use of Packard trucks throughout the country is indicated by the fact that the sale of these trucks for the calendar year 1911 amounted to twice the output for 1910, and new truck shops are being equipped so that the 1912 output will be about treble that of the present capacity. These additional shops will be ready for operation early in 1912.

#### Recent Motor Truck Sales in Baltimore.

Harry J. Mohr has purchased a second Atterbury 1500-pound delivery truck to be used in his connection with his meat market; Samuel Feast, florist, has purchased a Ford delivery for use in the city and suburban trade; the Gardiner Dairy Co. has purchased from the Consolidated Gas, Electric Light & Power Co., through its car department, five General Electric motor trucks of five tons capacity each, manufactured by the General Vehicle Co., Long Island, N. Y.; the Consolidated Gas & Electric Co. has purchased a two-ton Alco motor truck for use in its long-distance hauling; Stewart & Co. have purchased a two-ton Alco truck, the G.B.S. Brewing Co. a 3½-ton Alco truck, and Gomprecht & Benesch a three-ton Alco truck. Neely & Ensor are the Baltimore agents of the Alco trucks manufactured by the American Locomotive Co. of 1886 Broadway, New York. Harry S. Houpt, sales manager of this company, states that in his opinion "200 per cent. more motor trucks will be sold in 1912 than in this year. A strong indication of this is found in the movement of horse and wagon dealers into the motor-truck industry. The attitude of business men has changed. The doubts they formerly entertained regarding motor delivery have been removed, because the motor truck has been shown to be one of the greatest economic factors in business history."

#### Motor Tractors and Other Power Machinery for Farm Use in the South.

The dissemination of information regarding the use of motor tractors for use in

plowing, cultivating growing crops, for use in road building, and for the application of the power of its engines to other machinery on the farm is resulting in constantly increasing use of such machinery in the South. Practical knowledge of machinery obtained by the increasing use of automobiles, gasoline engines, and from the teachings and practice obtained by the many students in agricultural schools and colleges, is causing such a general distribution of mechanical knowledge that in every community the use of all kinds of machinery is becoming more and more extended. Evidences of this increasing use of motor machinery is frequently brought to the attention of the Manufacturers Record by inquiries regarding the manufacture of such machinery, statements regarding the use and results obtained in specific cases where such machinery has been used, etc. As an example of the departure from what is known as "old-time farming" the plantation of Mr. C. R. Emory, near Weldon, N. C., may be mentioned. The estate consists of 8000 acres of fine land under cultivation. He has applied the methods observed by him in traveling in Maryland and other farming districts. This property is well equipped with barns, silos, and every convenience for the care of stock, including running water and various kinds of labor-saving devices. The modern machinery and utensils used include corn huskers and shredders where two or three men are doing the work of 30 where hand work alone was used; a corn cutter and binder which does the work of 20 men; gang plows, two-way and disc plows, cultivators, feed grinders, etc. Light and strong steel wagons with ball bearings and other modern improvements are used. A device for sawing wood, which may be attached to one of the gasoline engines, will saw enough wood in a day to last a month. This is an economy not only in quick work, but eliminates the stereotyped excuse so often heard from the negro whose whereabouts have been in doubt and he explains "I've been cutting wood." This is an economy that will be particularly appreciated by Southern farmers. Two experts from the Agricultural and Mechanical College of Raleigh, N. C., act as instructors and foremen to teach the laborers how to handle machinery and to direct them in its economical use. Mr. Emory's interest in farm machinery has extended to the experimental work of the cotton picker, and he assisted in demonstrating and obtaining data regarding the Worthington cotton picker which was operated in picking part of the 1000 bales of cotton produced by his plantation this year. This is one of the cotton pickers designed for the use of individual farmers which has been demonstrated this year. A letter received from A. J. Mitchell, special representative of the Adams-Bagnall Electric Co., Candler Bldg., Atlanta, indicates the demand for gasoline tractors, etc. He asks for information and catalogues from manufacturers of gasoline tractor engines, farm tractors for operating plows, etc., small gasoline engines and appliances for general farm work, such as pumping water, sawing wood, churning, etc. A letter indicating the mechanical "bent" of farmers has been received from W. W. Lemmon of Junior, La., who not only operates all kinds of farm machinery, gasoline motors, etc., but has designed and built a cultivator tractor which he uses on the farm of which he is the manager. He calls this the Butterfly tractor and writes: "I have tried it out to the limit on the Wood Park Farm, of which I am manager, and it comes up to all I claim for it. The implement is designed for cultivation primarily, but is made sufficiently powerful to do any work within the reach of a tractor. I have driven it through mud 12 inches deep without any trouble whatever, and the machine can climb a grade of three to one without bucking." The enthusiasm and ability of this young farm manager expressed in the designing and construction of a farm tractor indicate the increasing attention and ability of farmers in mechanical work which is so necessary to successful farming operations of the present day, and such demonstrations foreshadow the demand for various kinds of power machinery, which demand is constantly increasing.

#### FOR PANAMA CANAL TRADE.

#### Plans for Developing Valuable Coal Measures in Alabama.

In giving further details of the valuable coal field he has diamond drilled, as reported in the MANUFACTURERS RECORD last week, Mr. W. H. Skaggs says: "The territory covers an area of ap-

proximately 40,000 acres, situate on North River in the northern part of Tuscaloosa county, and extending to Berry, in Fayette county. The coal measures in this part of the Alabama field have a dip of 30 feet to the mile, affording favorable conditions for economic mining. They are regular and undisturbed, indicating that whatever mineral deposits the territory carries will be found in large undisturbed areas. Two near surface seams outcrop, one of which runs from 17 to 22 inches; the second near surface seam is from 30 to 44 inches. The next underlying workable seam is in the Pratt group, at a depth of 350 to 750 feet, an average depth over the whole territory of approximately 500 feet. The exploration of this territory was done with a diamond core drill. The northern limit of the drilling operation so far completed is two and one-half miles south of Berry, and the southern limit is on Cripple Creek, about 19 miles north of Tuscaloosa. The territory so far proven is the distance between the northern and southern drill holes, about 12 miles. Other drilling is contemplated, both south and north of the points named.

"Regarding the coal measures of this part of the Alabama coal field, attention is called to the report of Mr. Carl Scholz of Chicago, president of the Rock Island Coal Co., and other corporations engaged in active mining operations. Mr. Scholz is well and favorably known as a competent, trustworthy and conservative expert in his profession. Mr. Scholz made a personal investigation of the territory. The result of late prospecting has fully justified the favorable opinion expressed in his first report. Mr. T. H. Aldrich of Birmingham, Ala., is well acquainted with this territory. He has 'looked over the maps, drill holes and analyses,' representing the examination and location of the coal property. Mr. Aldrich was a pioneer in the early coal and iron development of Alabama. He has been interested in and identified with several of the largest coal operations in Alabama, and his professional and personal standing is among the highest. Among other interesting facts in the report of Mr. Scholz are the following:

"(1) The holes put down are so distributed as to completely cover the area involved and definitely establish the coal measures underlying this territory of approximately 40,000 acres in the North River basin of the Warrior coal field.

"(2) The principal vein found in the prospecting is easily identified as the Pratt seam, lying at a depth of 422 feet in hole 7 on the north and 732 feet in hole 6 on the south end.

"(3) The analyses were made by chemists of established reputation and checked in several ways.

"(4) Especial attention is drawn to the fact that the sulphur is made up largely of sulphides which will volatilize in the coking process, and fixed sulphur being very small, enabling the production of a coke containing less than 1 per cent. of sulphur.

"(5) A careful inspection of the cores discloses uniformity over the entire field. The partings are hard, and easily removable in mining. The floor and roof conditions, judging from the cores, are very favorable in all cases.

"Mr. Scholz further says: 'There is very little to be added to my former report, excepting this drill work completely bears out the anticipation expressed two years ago as to the value of this field, and completely removes all doubt as to the presence of the coal seams and the quality of the veins.'

"Reporting on these properties, Mr. Truman H. Aldrich says: 'The seam of

coal is what is known in commercial parlance as the Corona seam, and this represents a combination of the Pratt and the underlying seam. In the western part of the field these two seams come together. This seam is being worked about six miles east of your property on the Southern road, near the northern end of same. It has been supposed for many years that this seam, as it came west from Corona, thinned out and became too small to be operated commercially, because at a point three-quarters of a mile west of Corona it is down to about three feet. It also is quite small, not over two feet, at the outcrop, about five or six miles north of the Southern road at Berry, Ala., and the same has also been bored into south of Corona, showing a split into two distinct seams, the same as it is east of Corona. You have, therefore, found a basin which was not known to exist, and from the bore holes all around your property it is pretty evident that you secured the greater part of this basin at its best. The analyses and other tests made from the borings show that you have a first-class gas and commercial coal. The coal itself breaks with cubical fracture, is hard enough to stand handling, and when mined will greatly resemble the Pittsburgh coal.

"The Gulf & Northwestern Railroad was organized under the laws of Alabama six months ago with a nominal capital. A meeting has just been called for the purpose of increasing the capital stock to a working basis. Mr. Woolsey Fennell is chief engineer of this road. He selected the route and located the line. The railroad, as between Natural Bridge and Tuscaloosa, was located with a view to making a direct outlet of the coal of Alabama to the Gulf of Mexico for the Panama Canal trade. The line is almost due north and south, with eight-tenths of 1 per cent. grade, and a maximum curvature of 6 degrees. The line as located can be built very cheaply for the grade of railroad proposed, and will give an outlet to the largest area of undeveloped coal, timber and farming product that could be given by any railroad that could possibly be built in Alabama. The railroad connections are such that it will give direct connection for all these products to all points of the United States, as well as to all foreign countries through the Gulf ports.

"Beginning at Natural Bridge, on the Northern Alabama and Illinois Central railroads, thence in a southerly direction, crossing the Frisco line at Eldridge, the Southern Railway at Berry, and connecting at Tuscaloosa, Ala., on the Warrior River, with the A. G. S. Railroad and the Mobile & Ohio Railroad, it is practically a line through the center of the most valuable coal fields in the South."

## FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

### Review of the Baltimore Market.

#### Office MANUFACTURERS RECORD,

Baltimore, Md., December 20.

In the Baltimore stock market during the past week United Railways common sold at 18 1/4; do. incomes, 62 to 62 1/2; do. funding 5s, 87 1/2 to 86 1/2; do. do. scrip, 87 1/2 to 88; do. 5s, notes, 90 1/2 to 90 3/4; do. 4s, 85 3/4 to 85 1/2; United Electric Light & Power 4 1/2s, 93 3/4; Consolidated Gas, Electric Light & Power common, 94 1/2 to 95; do. preferred, 99 1/2 to 100; do. 4 1/2s, 88 1/2 to 88 3/4; do. notes, 5s, 90 3/4; Consolidated Gas 4 1/2s, 97 3/4 to 97; Seaboard Air Line preferred, 90 1/2; do. second preferred, 63 1/4 to 64; Seaboard 4s, stamped, 87 1/4; do. adjustment 5s, 82 to

81 3/4; Mt. Vernon-Woodberry Cotton Duck 5s, 77 1/4 to 76 3/4; G. B. S. Brewing, 1; do. incomes, 3 3/4; do. 4s, 35 to 36. Calvert Bank sold at 70; Maryland National, 26; Baltimore Trust, 168 to 168 1/2; Merchants' Bank, 182 1/2; American Bonding, 79; Fidelity & Deposit, 153 to 154; Maryland Casualty, 93 1/4; United States Fidelity, 177.

Other securities were traded in thus: Houston Oil common, certificates, 8 to 7 1/2; do. preferred, 70 to 69; Seaboard & Roanoke 5s, 86 3/4; Charleston Consolidated Electric 5s, 97; Fairmont & Clarksburg Traction 5s, 100; Macon, Dublin & Savannah 5s, 99 1/4 to 102 1/4; Atlantic Coast Line convertible debenture 4s, 101 to 102 1/4; do. Consolidated 4s, 95 1/4 to 95 1/2; Atlantic Coast Line of Connecticut, 258 1/2 to 265; Atlantic Coast Line Railroad, 135 1/4; Norfolk Railway & Light 5s, 99 1/2 to 99 3/4; do. stock, 26; United States Steel common, 67 to 69; Columbia & Greenville 6s, 106; Baltimore City 3 1/2s, 1930, 55; do. 4s, 1954, 100 1/2; do. 5s, 1916, 104; Richmond 4s, 1940, 98; Coal & Iron Railway 5s, 101 1/2; Consolidation Coal, 100; Northern Central Railway stock, 127; Macon Railway & Light 5s, 101; Maryland Electric 5s, 99 to 98 3/4; Canton Company, 122; Norfolk & Portsmouth Traction 5s, 88 3/4; Augusta & Aiken common, 23 1/2 to 24; do. preferred, 77 1/2; Baltimore Electric preferred, 42 to 42 1/2; do. 5s, stamped, 94 3/4; Pennsylvania Water & Power common, 53; Jamison Coal & Coke, George's Creek 5s, 92 1/2; Virginia Railway & Power 5s, 96; Chicago Railways 5s, 100 1/4 to 100; Detroit United 4 1/2s, 80 1/4; Georgia & Alabama Consolidated 5s, 107 1/4; Georgia, Carolina & Northern 5s, 105 1/4 to 105; Virginia Midland 5th, 106 1/4; United Railways of St. Louis 4s, 77 1/2; Baltimore, Sparrows Point & Chesapeake 4 1/2s, 96; City & Suburban (Baltimore) 5s, 105; Baltimore Brick common, 2 3/4; Memphis Street Railway 5s, 99; Belair Electric 1st 6s, 1940, 100; Washington-Vandemere 4 1/2s, 96.

### SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended December 20, 1911.

Railroad Stocks.	Par.	Bid.	Asked.
Atlantic Coast Line.....	100	100	135 3/4
Atlantic Coast of Conn.....	100	262	264
Fairmont & Clarks, Trac. Pfd.....	100	92	94
Georgia Sou. & Fla.....	100	90	92
Georgia Sou. & Fla. 1st Pfd.....	100	94	96
Georgia Sou. & Fla. 2d Pfd.....	100	70	72
Seaboard Co. Common.....	100	20 1/2	20 3/4
Seaboard Co. 1st Pfd.....	100	90 3/4	91 1/4
Seaboard Co. 2d Pfd.....	100	62	64
United Rys. & Elec. Co.....	50	18 3/4	19 1/4
Washington, Balto. & An. Pfd.....	100	19	20
Virginia Ry. & P.....	100	40	42
Virginia Ry. & P. Pfd.....	100	80 1/2	81 1/2

Bank Stocks.	Par.	Bid.	Asked.
Bank of Baltimore.....	100	100	171
Citizens'.....	10	41	42 1/2
Farmers & Merchants.....	40	51	52
First National.....	100	121	126
German-American.....	100	107	108
German.....	100	108	108
Howard.....	10	14	14
Marine.....	30	43	43
Maryland.....	20	20	26 1/2
Mechanics.....	10	29	30
Merchants.....	100	187 1/2	184
Second National.....	100	135	135
Union.....	100	135	137
Western.....	20	38	38

Trust, Fidelity and Casualty Stocks.	Par.	Bid.	Asked.
American Bonding.....	25	82	82
Baltimore Trust.....	100	168 1/2	168 1/2
Fidelity & Deposit.....	50	152	155
Fidelity Trust.....	100	222 1/2	222 1/2
Maryland Trust.....	100	96	96
Maryland Casualty.....	25	92	93 1/2
Mercantile Trust & Deposit.....	50	149	150
Union Trust.....	100	112	112
U. S. Fidelity & Guaranty.....	300	170	170

Miscellaneous Stocks.	Par.	Bid.	Asked.
Ala. Con. Coal & Iron.....	100	41	41
Ala. Con. Coal & Iron Pfd.....	100	80	80
Baltimore Brick Pfd.....	100	25	29
Baltimore Electric Pfd.....	100	42	42 1/2
Con. Cotton Duck Common.....	50	2	2
Con. Gas, Elec. Lt. & P. Com.....	100	94 3/4	95
Con. Gas, Elec. Lt. & P. Pfd.....	100	39 1/2	100 1/2
Consolidation Coal.....	100	99	100
G. B. S. Brewing Co.....	100	78	114
Mer. & Miners' Trans. Co.....	100	76	76

Railroad Bonds.	Par.	Bid.	Asked.
Atlantic Coast 1st 4s.....	95	95 1/2	95 1/2
Atlantic Coast Conv. Deben. 4s.....	102 1/2	102 1/2	102 1/2
At. Coast (Conn.) 4s, Cfs. 5-20s.....	91	91	91
Atlantic Coast (Conn.) 5s, Cfs.....	103	103	103
Atlantic Coast (S. C.) 4s.....	97	97	97
Balto. & Harrisburg 5s.....	105	105	105
Balto. & Harrisburg Ext. 5s.....	104	104	104
Balto. Ches. & Atlan. 5s.....	105 1/2	105 1/2	105 1/2
Carolina Central 4s.....	92	94	94
Charleston & West. Car. 5s.....	106	107 3/4	107 3/4
Coal & Coke Railway 5s.....	92	94	94
Coal & Iron Railway 5s.....	101	101	101
Col. & Green. 1st 6s.....	105 1/2	105 1/2	105 1/2
Florida Cent. & Penin. 5s.....	106	106	106
Florida Southern 4s.....	91 1/4	91 1/4	91 1/4
Georgia & Alabama 5s.....	107 3/4	107 3/4	107 3/4
Georgia & Florida 5s.....	105	105 1/2	105 1/2
Georgia, Car. & North. 1st 5s.....	112 1/2	112 1/2	112 1/2
Georgia Pacific 1st 6s.....	107 1/2	107 1/2	107 1/2
Georgia Southern & Fla. 1st 5s.....	102	103 1/2	103 1/2
Macon, Dublin & Savannah 5s.....	102	103 1/2	103 1/2
New Orleans Gt. Nor. 5s.....	72 1/2	73 1/2	73 1/2
Petersburg Class A 5s.....	107	107 1/2	107 1/2
Petersburg Class B 5s.....	116	116 1/2	116 1/2
Potomac Valley 1st 5s.....	107	108	108
Richmond & Danville 6s.....	104	104	104
Savannah, Fla. & West. 5s.....	108	108	108
Seaboard Air Line 4s.....	87	87	87

Seaboard 4s, Stamped.....	87 1/4	87 1/4
Seaboard Adjustment 5s.....	81 3/4	82
Seaboard & Roanoke 5s.....	105	107
Seaboard & Roanoke 6s.....	100	100
South Bound 5s.....	107 3/4	107 3/4
Southern Railway Con. 5s.....	107	107
Surfco & Carolina 5s.....	104	104
Virginia Midland 3d 6s.....	104	104
Virginia Midland 4th 5s.....	104	104
Virginia Midland 5th 5s.....	106	106 1/2
Virginia Midland G. M. 5s.....	108	109
Washington & Vandemere 4 1/2s.....	95	96 1/4
Western Maryland 4s.....	88	88
Western N. C. Con. 6s.....	103	103
Wilmington & Weldon 5s.....	109	109
Wilmington, Balto. & Annap. 5s.....	77 1/2	77 1/2

Street Railway Bonds.	Par.	Bid.	Asked.
Annapolis & Potomac.....	100 1/4	101	101
Atlanta Con. Street Railway 5s.....	105	105 1/2	105 1/2
Augusta Railway & Electric 5s.....	101	101 1/2	101 1/2
Baltimore, Sp. Pt. & C. Pds.....	95 1/2	96 1/2	96 1/2
Baltimore Traction 1st 5s.....	108 1/2	108 1/2	108 1/2
Baltimore Traction (N. B.) 5s.....	110	111 1/2	111 1/2
Charleston City Railway 5s.....	103	103	103
Charleston Con. Electric 5s.....	96 1/2	97 1/4	97 1/4
Citizens' Ry., L. & P. of N. S.....	75	75	75
City & Suburban 5s (Wash.).....	103 1/4	104	104
Fairmont & Clarksburg Trac. 5s.....	99 1/2	100	100
Knoxville Traction 5s.....	105	105 1/4	105 1/4
Lexington Railway 1st 5s.....	96	96	96
Macon Railway & Light 5s.....	101	102	102
Maryland Electric Railways 5s.....	98 1/4	98 3/4	98 3/4
Memphis Street Railway 5s.....	98 3/4	99 1/2	99 1/2
Newport News & Old Point 5s.....	98 3/4	99 1/2	99 1/2
Norfolk & Portsmouth Trac. 5s.....	88 3/4	89	89
Norfolk Railway & Light 5s.....	99 1/2	99 3/4	99 3/4
Norfolk & Atlantic Term. 5s.....	93	93	93
Newport News & O. P. G. M. 5s.....	85 1/2	85 1/2	85 1/2
United Railways 1st 4s.....	62	62 1/2	62 1/2
United Railways Income 4s.....	62 1/2	62 1/2	62 1/2
United Railways Funding 5s.....	86 1/2	86 1/2	86 1/2
United Railways Notes 5s.....	99 3/4	99 3/4	99 3/4
Virginia R. & P. 5s.....	96	97	97

Miscellaneous Bonds.	Par.	Bid.	Asked.
Ala. Con. Coal & Iron 5s.....	85	86	86
Atlanta Con. 1st 5s.....	104 3/4	104	104
Baltimore Electric 5s.....	94	94 1/2	94 1/2
Consolidated Gas 5s.....	108 1/2	109 1/4	109 1/4
Consolidated Gas 4 1/2s.....	96 3/4	97 1/4	97 1/4
Con. Gas, Elec. Lt. & P. 4 1/2s.....	88	88 1/4	88 1/4
Con. Gas, Elec. Lt. & P. Notes.....	99 1/2	100	100
Consolidation Coal Ref. 5s.....	94	94 1/2	94 1/2
Consolidation Coal Ref. 4 1/2s.....	92	93 1/4	93 1/4
Fairmont Coal 1st 5s.....	96 1/4	97 1/4	97 1/4
G. B. S. Brewing Inc. 5s.....	35 1/2	36	36
Mt. Vernon-Woodby Cot. Duck 5s.....	76 1/2	77	77
United Elec. Lt. & P. 4 1/2s.....	93	94	94

### SOUTHERN COTTON-MILL STOCKS.

Quotations Furnished by William S. Glenn, Broker, Spartanburg, S. C., for Week Ending December 18.

	Bid.	Asked.
Abbeville Cotton Mills (S. C.).....	75	75
Aiken Mfg. Co. (S. C.).....	80	...
American Spinning Co. (S. C.).....	160	...
Anderson Cotton Mills (S. C.).....	48	...
Anderson Cot. Mills (S. C.) Pfd.....	100	...
Arden Mills (S. C.).....	92	...
Arkwright Cotton Mills (S. C.).....	99	100
Belton Mills (S. C.).....	105	120
Brandon Mills (S. C.).....	90	103
Brogan Mills (S. C.).....	90	90
Chiquola Mfg. Co. (S. C.).....	170	...
Clifton Mfg. Co. (S. C.) Pfd.....	97	...
Clinton Cotton Mills (S. C.).....	120	...
Courtenay Mfg. Co. (S. C.).....	100	...
Dallas Mfg. Co. (Ala.).....	99	80
Darlington Mfg. Co. (S. C.).....	90	...
D. E. Converse Co. (S. C.).....	90	...
Drayton Mills (S. C.).....	95	100
Eagle & Phenix Mills (Ga.).....	117	...
Easley Cotton Mills (S. C.).....	162	175
Enoree Mfg. Co. (S. C.).....	50	62
Enoree Mfg. Co. (S. C.) Pfd.....	96	100
Gaffney Mfg. Co. (S. C.).....	57	62
Gainesville Cotton Mills (Ga.).....	72	80
Greenwood Cotton Mills (S. C.).....	130	150
Gluck Mills (S. C.).....	99	...
Graniteville Mfg. Co. (S. C.).....	140	145
Greenwood Cotton Mills (S. C.).....	57	60
Grendel Mills (S. C.).....	90	100
Hartsfield Cotton Mill (S. C.).....	160	...
Honietta Mills (N. C.).....	160	175
Inman Mills (S. C.).....	100	105
King Mfg. Co. J. P. (S. C.).....	80	85
Lancaster Cotton Mills (S. C.).....	130	130
Lancaster Cot. Mills (S. C.) Pfd.....	97	100
Langley Mfg. Co. (S. C.).....	104	112
Laurens Mills (S. C.).....	120	135
Limestone Mills (S. C.).....	155	160
Lockhart Mills (S. C.).....	65	...
Lockhart Mills (S. C.) Pfd.....	90	100
Loray Cotton Mills (N. C.) Pfd.....	95	95
Marlboro Cotton Mills (S. C.).....	80	80
Mills Mfg. Co. (S. C.).....	92	92
Molloy Mfg. Co. (S. C.).....	95	95
Monaghan Mills (S. C.).....	100	...
Monarch Cotton Mills (S. C.).....	105	110
Newberry Cotton Mills (S. C.).....	125	130
Ninety-Six Cotton Mills (S. C.).....	130	150
Norris Cotton Mills (S. C.).....	121	130
Olympia Cotton Mills (S. C.).....	90	90
Or Cotton Mills (S. C.).....	90	90
Pacolet Mfg. Co. (S. C.) Pfd.....	95	100
Parker Common.....	25	...
Parker Preferred.....	65	...
Peizer Mfg. Co. (S. C.).....	163	177
Piedmont Mfg. Co. (S. C.).....	175	177
Poe Mfg. Co. F. W. (S. C.).....	110	115
Saxon Mills (S. C.).....	120	130
Spartan Mills (S. C.).....	120	130
Trion Mfg. Co. (Ga.).....	130	130
Tuacapa Mills (S. C.).....	300	350
Union-Buffalo (S. C.) 1st Pfd.....	60	60
Union Buffalo (S. C.) 2d Pfd.....	15	15
Victor Mfg. Co. (S. C.).....	110	115
Warren Mfg. Co. (S. C.).....	90	95
Warren Mfg. Co. (S. C.) Pfd.....	100	106
Washington Mills (Va.).....	28	...
Washington Mills (Va.) Pfd.....	106	110
Whitney Mfg. Co. (S. C.).....	110	110
Wiscasset Mills (N. C.).....	125	135
Woodruff Cotton Mills (S. C.).....	105	110
Woodside Cotton Mills (S. C.).....	70	100
Watts Mills (S. C.).....	70	85
Williamston Mills (S. C.).....	110	125



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 J. C. WANDS, Asst. Cashier.  
 JOHN B. H. DUNN, Asst. Cashier.  
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**FIRST NATIONAL BANK**  
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 gistration of corporations.  
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 special attention to out of town customers' accounts.  
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 tees title to realty throughout Delaware.  
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 ufacturing industries. Modern Methods of  
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 HARRY W. DAVIS, Secretary.  
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H. B. Wilcox, President, Blanchard Randall, V.-Pres.  
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 R. E. Bolling, A. Cash. Raymond B. Cox, Auditor.  
**The First National Bank**  
 17 South St., Baltimore, Md.  
 Capital - - - - - \$1,000,000  
 Surplus and Net Profits - - - 560,000  
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 Especially well equipped to handle the business  
 of Southern Manufacturers, Corporations and  
 Individuals. We invite a call or correspondence.  
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 R. VINTON LANSDALE, Cashier.  
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about the same. C. B. Willis is among those interested. Temporary office, 205 Dural Bldg.

Ga., Atlanta.—The City Savings Bank, capital \$50,000, is reported chartered; incorporators, R. H. McDougall, F. M. Loveless, Clarence May, Ed. M. Pearce and R. E. Lester.

Ga., Folkston.—Reported chartered: Citizens' Bank of Folkston; capital \$25,000; incorporators, B. G. McDonald, J. W. Rogers, B. F. Scott, T. L. Pickens, Jesse W. Vickery and T. S. Mizell.

Ga., Macon.—The Central Trust Co., capital \$300,000, expects to begin business about January 1 in the Georgia Life Building. The officers are J. J. Cobb, president; W. E. Small, Leon S. Dure and Will Gunn, vice-presidents; E. P. Mallory, trust officer; Hall & Hall, general counsel; West & Dasher, attorneys real estate department; Mallory & Wimberly, attorneys trust department; G. S. Derry, secretary; James M. Massey, treasurer; Sam C. Moore, manager real estate department; Cecil Morgan, manager collection department.

Ga., Macon.—Official: The York Investment Co. incorporated; capital \$10,000; organizers, Nat Oberdorfer and Mrs. Sarah Sobel of New York and Bruce C. Jones of Macon. Officers not yet elected. Business is expected to begin about January 15.

Ga., Rome.—The Rome Loan & Trust Co. has filed application for a charter; capital \$50,000; petitioners, E. P. Harvey, Wright Willingham and Callie B. Willingham, all of Floyd county, Georgia.

La., Lott.—Press dispatches state that a movement is under way to establish a bank. J. H. Wilson, president of the Wilson & Cochran Lumber Co., is said to be interested.

Md., Baltimore.—Announcement is made that the Mutual Security Loan Association is incorporated with \$200,000 capital with directors thus: C. I. T. Gould, president and general manager, and Henry F. Baker, Geo. C. Morrison, Alexander Harvey, Stuart Oliver, John J. Kelly, Jr., James S. Whedbee, Redmond C. Stewart, William H. Matthal, Bruce Cotten and Frederick A. Doffeld. Among the stockholders are Summerfield Baldwin, Franklin P. Cator, Loring A. Cover, John B. Ramsay, McNeal Jenkins, Middendorf, Williams & Co., Frank A. Furst, Robert Crain, Herman Bernheimer and B. Howell Griswold, Jr.

Md., Baltimore.—Plans are under way to organize the Equitable Mortgage & Security Co. with \$1,000,000 capital and a paid-in surplus of \$250,000. Among those interested are John R. Bland, chairman; William H. Whitridge, Van Lear Black, Eugene Levering, Paul A. Seger, Thomas A. Whelan and William Wallace Lanahan.

Md., Baltimore.—Official: Incorporated: Foresters' Building Association; capital \$650,000; temporary location, 1237 Hollins St., corner Carey. Business is to begin about January 1. Chas. R. Becker and others are interested.

Mo., St. Louis.—The Utilities Indemnity Exchange, to do an interinsurance business, is reported launched with Lynton T. Block as president and John Q. Day vice-president.

N. C., Charlotte.—The Greater Charlotte Investment Co., authorized capital \$1,000,000, is reported being organized. Among those interested are E. M. Cole, John A. McKee and Dr. A. D. Glascock.

N. C., Gastonia.—Official: The Holland Realty & Insurance Co. incorporated; capital \$100,000; B. M. Holland, president; P. W. Garland, Jr., vice-president and attorney; J. M. Holland, secretary and treasurer. Business is to begin January 1, 1912.

N. C., White Oak.—The Textile Bank is reported chartered; authorized capital \$225,000. Among the incorporators are George S. Powell of Asheville, N. C. Others interested are Caesar Cone, Bernard Cone, J. E. Hardin, A. C. Holt, J. H. Cole and A. B. High.

N. C., Wilmington.—Official: The Fidelity Investment & Development Co. of Wilmington, capital \$100,000, incorporated; D. N. Chadwick, Jr., president; W. C. Cartinhour, vice-president, and E. A. Chanaberry, secretary.

Okla., Bristow.—Official: The Bristow National Bank began business December 14; capital \$25,000. Directors, C. J. Benson, president; R. W. Yakish, cashier; S. C. Vinson, vice-president; F. H. Rely and B. T. Coppeige. This succeeds the Farmers State Bank.

Okla., Canadian.—A building and loan association is reported organized with \$100,000 capital. Directors: D. L. Roe, president; Fain G. Gillock, first vice-president; Dr. W. P. Lewallen, second vice-president; John W. Roe, secretary and treasurer; W. L. Belt, Wirt A. Byars, M. W. Priddy, H. N. Ames and J. D. Fulton. Hon. W. H. Fuller is attorney.

Okla., Claremore.—The National Bank of Claremore is reported chartered; capital \$50,000; Earle G. Bayless, president; W. F. Hays, vice-president; G. D. Davis, cashier; G. O. Bayless, assistant cashier. This bank is a conversion of the Bank of Claremore.

Okla., Muskogee.—Official: The Oklahoma National Bank, which is a conversion, expects to begin business about January 7; capital \$100,000; incorporators, Jerrie M. McClusky, W. R. McClusky, J. N. Wilkinson, U. L. Jackson, R. A. Jossey and M. G. Young.

Okla., Wagoner.—Official: The Wagoner Building & Loan Co. incorporated; capital \$25,000; incorporators, Robert C. Payne, G. F. Wagoner, Howard Searcy, Henry M. Brown, Frank Schroyer, Matt Stell, Omar H. Ellington, Dr. M. C. Wright, W. A. Lamon and A. C. Hunt. Business is to begin at once.

S. C., Columbia.—The Union Bank Building Co. is reported to have been granted a commission; capital \$50,000; petitioners, Jos. Norwood, John W. Lillard, Charles H. Barron and C. A. Baldwin.

S. C., Cheraw.—The Maynard-Raby Realty & Trust Co. is reported to have been granted a commission; capital \$25,000; petitioners, J. W. Maynard, R. F. Caston and J. O. Raby.

S. C., Georgetown.—The Palmetto Building and Loan Association is reported chartered; capital \$75,000; officers, W. D. Morgan, president; L. S. Ehrlich, vice-president, and J. I. Hazard, secretary and treasurer.

S. C., Winnsboro.—The Catawba Loan Co. is reported to have been granted a commission; capital \$30,000; petitioners, J. J. Obeart, D. V. Walker, Jr., F. A. DesPortes, C. W. McCants and D. D. McMeekins.

Tenn., Chattanooga.—The Mercantile Trust Co. is reported to have made application for a charter; capital \$10,000; incorporators, E. M. Elsworth, C. E. Kirkpatrick, John H. Keller, W. A. Henson and E. B. Shadden.

Tenn., Conasauga.—Official: The Bank of Conasauga incorporated; authorized capital \$25,000; incorporators, M. C. King, C. B. Benedict, John Byers, John Lucy and J. F. Gilbert. Business is to begin about January 15. Officers not yet elected.

Tenn., Greeneville.—The Citizens' Savings Bank is reported to have opened for business with J. F. Hannah, president, and Joe Bittton, cashier.

Tenn., Tullahoma.—The Planters Bank & Trust Co., capital \$20,000, is reported organized with directors thus: A. P. Ray, president; J. A. Mitchell, vice-president; O. V. Richardson, cashier; M. C. Parks, R. W. Hickerson, W. D. Weeks and S. H. Drixey.

Tex., Dallas.—Reported chartered: The Home Investment Co.; capital \$100,000; incorporators, P. M. Higgins, C. P. Burton and Charles B. Storer.

Tex., Houston.—Official: The American Trust Co. began business December 5; capital \$500,000; authorized \$1,000,000; Monta J. Moore, president; J. D. Hefly, John H. Kirby, Dr. E. W. Brown, M. P. Geiselman, vice-presidents; N. B. Sligh, treasurer, and A. R. Sheffer, secretary. Besides doing a trust company business, the company has qualified under the State law as a guaranty fund bank and is receiving deposits under that plan.

Tex., Poteet.—The First State Bank began business November 25 with \$10,000 capital. J. M. Rogers is president; C. J. Ernst, vice-president, and W. O. Fitch, cashier.

Tex., Seguin.—Reported chartered: Guadalupe County Abstract Co.; capital \$300; incorporators, H. M. Wurzbach, A. C. R. Lindsay and C. A. McCay.

Tex., Springtown.—The First State Bank is reported organized with \$15,000 capital paid in; directors, J. T. Ward, president; J. D. Doughty, vice-president; J. D. Hutcheson, cashier; C. A. Holland, G. B. Moody, J. B. Houser and M. P. Denny.

Va., Dillwyn.—An official letter says that R. A. Gilliam is organizing a national bank at Dillwyn.

W. Va., Princeton.—The Virginian Bank of Commerce, capital \$25,000, is reported to have begun business with officers thus: Pres-

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Letterheads unruled, 7 x 8 1/2	.99	.86	.78
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dent. W. D. Pendleton; first vice-president, S. J. Evans, and cashier, N. H. Plaster.

W. Va., Princeton.—Reported chartered: The People's Insurance Agency Co.; capital \$50,000; incorporators, Geo. W. Lazenby, W. L. Welborn, G. C. Bowling, J. E. Gooden and H. E. De Jarnette.

### NEW SECURITIES.

Ala., Jasper.—March 12, it is reported, an election is to be held in Walker county to vote on \$300,000 of road bonds.

Ala., Linden.—Official: \$10,000 of 6 per cent. 10-year school-building bonds are to be issued; denomination \$500; dated December 1, 1911. Address John B. Weakley, Birmingham. Ala. A. B. Stone is Mayor of Linden.

Ala., Tuscaloosa.—Ulen & Co. of Chicago are reported to have been awarded \$35,000 of school bonds.

Ark., Gravette.—Press dispatches state that some time in January \$25,000 of water and light bonds will be offered.

Ark., Pine Bluff.—The Simmons National Bank of Pine Bluff is reported to have been awarded \$55,000 of 6 per cent. 6-year bonds.

Fla., Fort Pierce.—Reported voted: \$90,000 of water-works, sewerage and electric-light plant bonds.

Fla., St. Augustine.—Reported defeated: Sewer bonds.

Fla., Vernon.—December 28, it is reported, an election is to be held in Washington county to vote on \$300,000 of road bonds.

Ga., Bainbridge.—Reported voted: \$50,000 of school, \$15,000 of city hall, \$10,000 of water-works extension and \$25,000 of street-paving bonds. Defeated: \$20,000 of hospital bonds. J. W. Callahan is Mayor.

Ga., Douglas.—Reported voted: \$25,000 of school, \$15,000 of light and water and \$10,000 of sewerage bonds.

Ga., McDonough.—Reported voted: \$20,000 of water-works and \$20,000 of sewerage bonds.

Ga., Quitman.—Reported that an election is to be held January 16 to vote on \$40,000 of school, \$22,000 of street-paving and \$12,000 of fire-department bonds.

Ga., Sylvester.—Reported voted: \$20,000 of public improvement bonds.

Ky., Lexington.—Notice is given that bids will be received until 10 A. M. December 14 by John Skain, Mayor, for \$646.94 of 6 per cent. street improvement bonds.

Ky., Fort Thomas.—Official: Bids will be received until 8 P. M. December 18 for \$40,000 of 5 per cent. 20-year school bonds; denomination \$500; dated January 1, 1912; maturity January 1, 1942. David Davies is secretary School Commissioners.

La., Jena.—Official: The Interstate Trust & Banking Co., New Orleans, La., has purchased \$30,000 of 5 per cent. bonds of Jena school district No. 1; dated April, 1911.

La., Lake Charles.—Reported voted: \$140,000 of 34-year school bonds.

La., Natchitoches.—Official: It is proposed to issue \$50,000 of 5 per cent. school bonds of Natchitoches parish. Address U. S. Roy.

La., New Orleans.—Press dispatches state that \$7000 of 5 per cent. bonds of Lake Borgne Levee District were purchased by Mysing Bros. at \$105.38.

La., Patterson.—Reported voted: School bonds.

Md., Upper Marlboro.—A bill is to be introduced in the Legislature, it is reported, providing for the issuing of \$100,000 of Prince George's good road bonds.

Miss., Shubuta.—Reported defeated: \$17,000 of water-works bonds.

Miss., Vicksburg.—Reported voted: \$50,000 of school bonds.

Mo., Booneville.—A. G. Edwards & Sons of St. Louis is reported to have been awarded at par \$100,000 of 4 per cent. 5-20-year Cooper county courthouse bonds.

Mo., California.—Bids will be received by H. E. Blakeman, City Clerk, it is reported, until 7:30 P. M. January 2, for \$15,000 of 5 per cent. 20-year sewer bonds; dated January 1, 1912; maturity January 1, 1932.

Mo., Mountain Grove.—Reported voted: \$25,000 of water-works bonds.

Mo., Paris.—Bids will be received until 2 P. M. January 3 by W. M. Meter, treasurer, Monroe county, for \$100,000 of 4 per cent. Monroe county courthouse bonds.

Mo., Warrensburg.—The William R. Compton Bond & Investment Co. of St. Louis is reported to have purchased at \$861.40 premium \$46,000 of bonds of Big Creek Drainage District, Johnson county.

N. C., Catawba.—In January or February, according to press dispatches, an election will probably be held in Catawba county to

vote on \$50,000 of 5 per cent. 30-year road bonds.

N. C., Clinton.—Sampson county is reported to have issued \$50,000 of road bonds.

N. C., E-field.—F. M. Stafford & Co., Chattanooga, are reported to have purchased \$10,000 of 6 per cent. 1-20-year electric-light system bonds. W. T. Clement is Mayor.

N. C., Fayetteville.—An election will soon be held in Cumberland county, it is reported, to vote on \$200,000 of road-improvement bonds.

N. C., Greensboro.—Official: Defeated: Guilford county railroad-bond bonds.

N. C., High Point.—Reported voted: Bonds in aid of the Randolph & Cumberland Railroad Co.

N. C., Red Springs.—Official: The Robinson-Humphrey-Woodlaw Company, Atlanta, Ga., purchased on December 4 the \$35,000 of 6 per cent. 30-year water and sewerage bonds; denomination \$500; dated June 1, 1911; maturity June 1, 1941. A. B. Pearsall is chairman Board of Public Works.

Okla., Guthrie.—Reported that an election will soon be held in Logan county to vote on highway bonds.

Okla., McAlester.—Reported voted: \$50,000 of water-works bonds.

Okla., Wagoner.—The Attorney-General is reported to have approved \$75,000 of water and light bonds.

S. C., Fort Mill.—Reported voted: \$4000 of street bonds.

S. C., Rock Hill.—Official: Defeated: \$50,000 of school bonds. J. J. Waters is president and C. K. Chreitzberg, secretary and treasurer, Board of Trustees of Rock Hill School District No. 12.

S. C., Rock Hill.—A. B. Leach & Co. of New York have, it is reported, purchased \$60,000 of sewer bonds.

Tenn., Cookeville.—Regarding report that election would be held November 25 to vote on improvement bonds, an official letter says "no election held."

Tenn., Etowah.—H. T. Holtz & Co., Chicago, have, it is reported, purchased \$25,000 of 6 per cent. 20-year street and sewer bonds.

Tenn., Gallatin.—Sumner county is reported to have voted \$20,000 of road bonds.

Tenn., Jonesboro.—Official: E. H. Rollins & Sons, Chicago, New York, Denver, San Francisco and Boston, purchased at par and 39% premium and 4 per cent. per annum interest on average daily balances, blank bonds and disbursements free to county; also accrued interest up to delivery, the \$60,000 of 5 per cent. Washington County "Memphis to Bristol Highway" bonds; denomination \$500; dated January 1, 1912; maturity January 1, 1932; optional January 1, 1922. W. C. Leach is clerk and E. B. Hensley, chairman, Washington county.

Tenn., Loudon.—Official: The First Na-

tional Bank of Lenoir City, Tenn., purchased on December 9, at \$104.207, the \$100,000 of 5 per cent. 30-year Loudon county road-improvement bonds; denomination \$500 or \$1000; dated January 1, 1912; maturity 1942. Val. Stockton is chairman Loudon County Pike Commissioners.

Tex., Austin.—The State Board of Education is reported to have purchased the following securities of independent school districts: Spur \$3000, Madisonville \$6000, Myra \$5000, Ray City \$4000; county common school districts, Reeves No. 1, \$2000; Galveston No. 20, \$3500; Eastland No. 30, \$1700; Crockett No. 1, \$4000; McLennan No. 63, \$2900; Calhoun No. 1, \$2500; Concho No. 11, \$6500.

Tex., Austin.—The Attorney-General has approved securities as follows: \$3000 of district No. 1 and \$2000 of district No. 6 5 per cent. 5-20-year Armstrong county school bonds; \$19,000 of 5 per cent. 20-year water-works bonds; \$5000 of 5 per cent. 10-year street-improvement bonds of Alice.

Tex., Blessing.—Official: Voted November 9: \$100,000 of 5 per cent. bonds of drainage district No. 4, Matagorda county. Address R. R. Lewis, attorney, Bay City, Tex.

Tex., Bryan.—February 8, it is reported, an election is to be held in Brazos county to vote on \$200,000 of Brazos county road and bridge bonds.

Tex., Dallas.—The Board of Municipal Commissioners is reported to have passed an ordinance ordering the issuing of \$100,000 of city hospital bonds.

Tex., Dalhart.—Official: Voted August 19: \$15,000 of bonds of School District No. 1, and on August 20 \$3000 of District No. 11, Dallam county 5 per cent. 10-20-year school building and equipping bonds. District No. 1: Denomination \$500; dated October 10. District No. 11: Denomination \$100; dated August 20, 1911. Date of opening bids not yet decided. Address C. S. Harrington, County Superintendent. W. C. Denton is County Clerk.

Tex., Denton.—S. H. Haskins, Judge of Denton county, will, it is reported, receive bids until noon January 8 for \$75,000 of 5 per cent. 10-40-year bonds of Lewisville Road District No. 1, Denton county.

Tex., Fort Worth.—Reported voted: \$1,000,000 of road and \$800,000 of bridge Tarrant county bonds.

Tex., Galveston.—Local contractors are reported to have purchased \$26,000 of 5 per cent. bonds of Drainage District No. 1, Galveston county.

Tex., Houston.—Press dispatches state that the W. R. Compton Bond & Mortgage Co. of St. Louis has purchased the \$524,000 of refunding and \$500,000 of school bonds. H. B. Rice is Mayor.

Tex., Meridian.—Reported that \$40,000 of bonds of Road District No. 7, Bosque county, were recently voted.

Tex., Port Arthur.—Official: Bids will be received until 4 P. M. January 12 for \$100,000 of 5 per cent. 5-20-year street-improvement bonds; denomination \$1000; dated October 10, 1911; maturity October 10, 1951. G. N. Bliss is Mayor.

Tex., Sherman.—Reported voted: \$400,000 of Grayson county road bonds.

Tex., Terrell.—Press dispatches state that the City Commission has been asked to call an election to vote on sewerage and school bonds.

Tex., Tyler.—Reported voted: \$50,000 of school district building bonds.

Va., Cartwrights Wharf.—J. L. Bond, chairman School Board of Sleepy Hole, will, it is reported, receive bids until 12:30 P. M. December 20 for \$16,000 of 5 per cent. school bonds.

Va., Colonial Beach.—Official: Farson, Son & Co., Chicago, purchased at par on November 9 the \$37,000 of 6 per cent. 25-year water and sewerage bonds; denomination \$500; dated November 9, 1911; maturity November 9, 1936. H. W. B. Williams is Mayor and J. O. Hefflin, Town Clerk.

Va., Harrisonburg.—Official: The People's Bank of Harrisonburg purchased on November 7 at par the 5 per cent. 30-year city refunding, steam fire engine and filtration plant for sewerage bonds. W. H. Bertram is chairman finance committee.

Va., Lynchburg.—Press dispatches state that the Board of Aldermen has adopted an ordinance providing for the issuing of \$550,000 of street-improvement bonds. It is also stated that it is proposed to advertise the bonds at 4½ per cent., running 34 years.

Va., Norfolk.—Press reports state that a bill is to be introduced in the Legislature asking authority to issue \$450,000 of bonds to construct the proposed bridge across the Eastern Branch between Norfolk and Berkeley.

Va., Petersburg.—Official: Bond ordinance failed to pass upper branch of the City Council. N. T. Patterson is chairman finance committee.

At Port Arthur, Tex., bids will be received until 4 P. M. January 12 for \$100,000 of 5 per cent. 5-20-year street-improvement bonds. Further particulars will be found in the advertising columns.

### FINANCIAL NOTES.

The Richland Savings Bank & Trust Co. of Columbia, S. C., will, it is reported, increase its capital from \$25,000 to \$100,000.

The conversion of the Purdy State Bank of Purdy, Mo., into the First National Bank of Purdy is approved; capital \$25,000.

The Germania Savings Bank & Trust Co. of Memphis, Tenn., according to press dispatches, has decided to increase its capital from \$25,000 to \$50,000.

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**MANAGER FOR SMALL OIL MILL** WANTED—Mill located in South America. Want a man capable of keeping up the machinery, extracting oil, making soap, toilet soap, leather dressings, etc. For full information address No. 322, care Manufacturers Record.

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**SUPERINTENDENT WANTED** for tomato canning factory to be erected at this place. Address O. N. Richardson, care of Rome Soil Pipe Co., Rome, Ga.

**WANTED**—A young and competent architect, who is good on perspective and design, to buy an interest in a well-established office doing a good business and with good prospects. Address No. 916, care Manufacturers Record.

**A LIVE**, up-to-date hardware man wanted to subscribe \$500 or \$10,000 worth of stock in a first-class hardware and implement business, established eight years, to be incorporated at once at \$75,000 in a thriving new city in Oklahoma, population 25,000; great surrounding resources for wholesale and retail; water, freight rates; no competition; one hundred small towns and surrounding country to draw from; all employees must be stockholders; first-class reference required. Address Forrest Hardware Company, Muskogee, Okla.

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**ASSETS**, health, energy, integrity, 25 years' broad business experience; qualified detail man, corporation secretary-treasurer, auditor, account systems manager; coal, machinery, manufacturing; highest class references; want position South, with large concern or as Southern representative. Address No. 908, care Manufacturers Record.

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**WANTED**—To correspond with parties desiring or contemplating installing absorption ice machines. Consolidated Ice & Power Co., Valdosta, Ga.

## FACTORY SITES

**FREE SITE**—I will give a fine level one-acre tract or lot on the Southern Railway at Warrenton, Alken Co., S. C., joining lands Warren Mfg. Co., and in 500 feet of the mill, 1000 feet of depot, 3/4 mile of Graniteville Mills, in the center of Horse Creek Valley, a fine cotton manufacturing section, where labor is plentiful and cheap, health good. This offer is to any manufacturers that will invest \$10,000, not less. Come South with hosiers, knitting, or any kind of manufacturing. Don't ask questions. First one comes gets it. So grab your hat and see J. M. Polatty at Warrenton, S. C.

## INDUSTRIES WANTED

### CEMENT PLANT

Best material, best location in the South; river and rail transportation to ports and direct to Panama. Address No. 925, care Manufacturers Record.

### MISCELLANEOUS

**LAREDO, TEXAS**, wants a tourist hotel, cement factory, up-to-date educational institution, down-the-river railroad. Laredo has best coal Texas, natural gas, equable climate, abundant water, labor. In citrus fruit district. Address Board Trade.

**ARE YOU** looking for a good factory site? We have a growing town with good railroad facilities and offer splendid inducements. Address W. D. Welsh, Mayor, Kentwood, La.

**SUFFOLK**—The best manufacturing and distributing point in Virginia; six railroads and water transportation; plenty of labor; cheap fuel; electric power; seventy manufacturing plants in successful operation; opportunity for furniture and woodworking plants and any wholesale jobbing or manufacturing business; center of tidewater; richest farming section to be found; healthy; excellent schools and churches; filtered water, gas and sewer. Write Board of Trade, Suffolk, Va.

**VICTORIA, TEXAS**, head of navigation of Guadalupe River; center of cotton, corn, truck and citrus fruit-growing district of South Texas; country rapidly developing; opportunities for many industries. If interested in the coastal section of Texas, write for booklet "D" to the Secretary of the Progressive League.

**CLEVELAND, TENN., WANTS YOU**—The best town in the Southeast, with a hydro-electric development of 32,000 initial horsepower for manufacturing purposes, final development 82,000 horsepower. Free manufacturing sites; exemption from city and county taxes; ample railroad facilities; spring water pumped to all parts of the city; cheap raw materials; 186 miles of pike roads in county; fine farming and trucking section; best of public utilities; cheap white labor; cheap power; ideal location for cotton mill, furniture factory and brick-manufacturing plant; good climate; most rapidly developing city in the Southeast. Write Commercial Club, Cleveland, Tennessee.

**WANTED**—Asheville, N. C., 31,000 population, including suburbs; 38 miles paved streets; best water on earth; men with capital to invest in money-making enterprises; good opening for manufacturing enterprises. Write Board of Trade.

## INDUSTRIAL PLANTS FOR SALE

### CRATE AND BOX FACTORY

**FOR SALE AT A BARGAIN**—Crate and box factory, situated near center famous Chattanooga berry district; capacity of plant over hundred thousand packages annually; demand five times capacity; timber plentiful; white labor; conditions ideal; legitimate reasons for selling. Price and terms given on request. Box 25, Graysville, Tenn.

### SAW MILL

**FOR SALE**—At Sumter, S. C., circular-saw mill, 25,000 capacity; drykiln, planing mill, logging outfit including nine trucks, locomotive, log skidder and two miles of 20-pound rails; will take stock in a manufacturing company in payment for same. Send for detailed list. Sumter Pine & Cypress Co., Williamsport, Pa.

### COTTON MILL

**FOR SALE**—Cotton mill in upper South Carolina with about 5000 ring spindles and accompanying equipment for the production of cotton yarns. For full particulars address No. 921, care Manufacturers Record.

### FACTORY BUILDING

**FOR LEASE OR SALE ON EASY TERMS**. Two-story brick factory building, 200x30 feet, with eels, giving total floor space 30,000 square feet, with power, light, heat and water, automatic sprinkling system, 150 H. P. Corliss engine and two boilers. Site 255x290 feet, within corporate limits; abundant help nearby; accessible to electric cars, railroads and steamboat lines. Barton Myers, Norfolk, Va.

### COMFORT AND MATTRESS FACTORY

**MODERN BRICK BUILDING**, sprinkled, steam heated, fifty by two hundred fifty feet, two-story; all machinery, ready for operation; warehouse, ten acres land, nine cottages; plenty labor; good health; good schools. Bargain for right party. Address No. 926, care Manufacturers Record.

### PLANING MILL AND BOX FACTORY

**FOR SALE**—Planing mill and box factory machinery in good condition and in running order, having been shut down two months; can arrange terms with the right parties. For information address S. B. Hoyt, Buford, Ga.

### FLOUR MILL

**FOR SALE**—Flour mill; fine stock company proposition; fine grain belt; fine shipping facilities; \$5000 cash; balance terms; particulars on request. J. Q. Ketter, Pikeville, Blount Co., Tenn.

## MINERAL AND TIMBER LANDS WATER POWERS AND MISCELLANEOUS PROPERTIES

**WRITE** for list New Orleans residence lots and factory sites; Louisiana mineral, timber, oil-over and farm lands. Orient Co., Ltd., 513 Audubon Bldg., New Orleans, Louisiana.

**FOR SALE**—Boundary of 256,000 acres in State of Durango, Mexico; good ranch, mineral and timber land; contains 500,000,000 feet yellow pine; railway building within 25 miles of lands; 25-mile tramway to new railway can be built at small cost; 100 miles to Pacific port of entry by rail, for ship-loading for use of Panama Canal route and for all American and European shipping markets. We control and can deliver promptly this valuable boundary for \$2.50 per acre; one-fourth down; one, two and three years for balance. Principals only need reply. Address for particulars, J. C. Lindley, Greenboro, N. C.

**FACTORY SITES**, Business Property, Residences and Farms. If interested in the metropolis of the Southwest or its territory, write for free list and booklet on Houston, Texas (where 17 railroads meet the sea), or make your wants known. Bank references if desired. Central Land Co., 303 Theater Bldg., Houston, Texas.

**LAND FOR SALE**—400 acres, 3/4 mile from Wilmington, N. C.; bounded on north by Smith's Creek, south by macadamized public road, and is traversed by Atlantic Coast Line Railroad; part is underlaid with lime and phosphate rock; about 250 acres under cultivation; suitable for manufacturing sites, farming, colonizing or suburban development; delightful climate. For particulars address L. M. Noble, P. O. Box 482, Wilmington, N. C.



# Classified Opportunities

## LIMESTONE PROPERTY FOR SALE

**LIMESTONE QUARRY PROPERTY FOR SALE.**—Tract of 560 acres, on which is situated inexhaustible limestone quarry, analyzing 99.13 pure carbonate of lime, in celebrated Shelby Lime District, on outskirts best Alabama coal fields, and on main line L. & N. R. R. 30 miles of Birmingham, Alabama. Quick bargain cash sale. Address S. W. Catts, No. 329 Bell Bldg., Montgomery, Ala.

## COAL LANDS FOR SALE

**VALUABLE COAL TRACT FOR SALE.**—A 400-acre tract of coal land, located in East Tennessee, containing six workable surface veins of high-grade coal, suitable for steam, domestic and coking purposes, besides several excellent workable veins under the surface. The property is now within four miles of a railroad, and a charter for a new railroad has recently been taken out, the proposed route being through the center of this property. There is between 12,000,000 and 15,000,000 feet of merchantable hardwoods on the tract that can be cut and marketed at a handsome profit just as soon as this new road is completed. The price on the property is \$45 per acre, all cash, or \$50 per acre on terms. Blueprints and engineer's report will be furnished genuine buyers who can show financial ability to purchase such a property. Correspondence solicited with principals only; no agents. Address Albert F. Lee, 216 Sixth Ave., Nashville, Tenn.

**FOR SALE.**—5000 acres coking coal land in Eastern Kentucky; accessible to railway by spur of six miles; carries also canal coal seam; title perfect; can arrange to show land any time. Address No. 913, care Manufacturers Record.

**FOR SALE.**—At once, lignite coal farm of 15 acres, 100 in cultivation, in Wood county, Texas, three miles from Alba, 300 yards from M. & T. Railroad; vein between 4½ and 5 feet thick runs through farm; will lease, farm stock company or sell. T. S. Chamblin, Durant, Okla.

## TIMBER LAND FOR SALE

**FOR SALE.**—SOUTH GEORGIA TIMBER. Long-leaf pine, 2000 acres, original growth, never been turpintined; will average \$500 feet to the acre; 3½ miles railway and on river; Jeff Davis county; finest body of Virginia pine in State; first good offer gets it. Price \$18 per acre. 1409 Candler Bldg., Atlanta, Ga.

**FOR SALE.**—2200 acres of timber land in Liberty county, Georgia, located one-half mile from Ludowice, known in the Clerk's office of the said county as the Charles Tutty estate, R. O. Tutty, executor.

About 1000 acres of this timber has not been timbered for 35 years; 1000 acres are now virgin turpentine. The Atlantic Coast Line runs through this tract of land.

For terms and particulars apply to the Laborers & Mechanics' Realty Co., Inc., sole agents, 2006 11th St. N. W., Washington, D. C.

**WEST VIRGINIA TIMBER TRACT.** 15,000,000 feet virgin timber, directly on railroad, with low rates to all markets. This will be sold at a bargain. No agents. Address No. 904, care Manufacturers Record.

**TEXAS.**—Snap—6000 acres ash and cottonwood; some trees 5 feet through and 90 feet high; estimated to cut 52,000,000 feet lumber; in touch with water and rail transportation; very rich soil; terms. E. B. Noble, 701 Bryan Ave., Fort Worth, Texas.

**TO LUMBERMEN.**—If you desire timber lands situated near the Mobile port, write us. We have some for sale by acreage or per thousand feet. Alabama State Agricultural Land Co., Home Office, Center, Ala.

## TIMBER FOR SALE

**FOR SALE.**—40,000,000 feet of first-class hardwood and cypress, situated right on a railroad. Apply to E. J. Iles, Alexandria, La.

## CUT-OVER TIMBER LANDS

**CUT-OVER TIMBER TRACTS.**  
30,000 acres cut-over pine lands, Miss. .... \$6.50  
30,000 acres cut-over pine lands, La. .... 6.00  
75,000 acres cut-over pine lands, Tex. .... 5.00  
15,000 acres cut-over hardwoods, La. .... 4.50

Marsh Lands for Reclamation.  
30,000 acres in a body, Gulf Coast of La. 3.00  
Timber Lands.

20,000 acres L. L. Y. pine, Fla., cut 3500 ft. 7.00  
15,000 acres L. L. Y. pine, Ala., cut 7000 ft. 21.00  
30,000 acres hardwood, cut 10,000 ft. (60% red gum) ..... 10.00  
Finest red gum proposition South.  
Wm. R. Taylor, 508 Perrin Bldg., New Orleans, La.

10,700 ACRES Louisiana hardwood timber lands, 104,000,000 ft., on Sabine River, \$15 acre.  
20,000 acres rich dark bottom cut-over hardwood, S. W. Arkansas, lands on Ry., \$6 acre.  
35,000 acres Louisiana cut-over lands, \$5 acre.  
Robert Sessions, Wintrop, Ark.

## FARM AND TIMBER LANDS

**FARM AND TIMBER LANDS.**—We have attractive offerings in farm, yellow pine and hardwood timber lands. We also handle coal and ore properties. Correspondence from interested parties invited. Provident Trust & Security Co., Land Dept., Walton Bldg., Atlanta, Ga.

**ARE YOU INTERESTED IN LAND?** If so, would like to send you descriptive lists of the best farm and timber lands on earth, in Arkansas, Mississippi and Louisiana; land rents from \$5 to \$12 per acre; prices from \$10 per acre up. Hurst Trust Co., Nos. 3 and 4 Porter Bldg., Memphis, Tenn.

## I HAVE BARGAINS IN TIMBER TRACTS.

large colonization propositions, cut-over lands and reclamation tracts in any size wanted up to 150,000 acres from \$2.50 per acre up.

Wm. R. Taylor, Land and Timber Investments, 508 Perrin Building, New Orleans, La. Established 1888. Sales over \$6,000,000.

## FLORIDA CYPRESS.

Five million feet easily accessible; tract also carries pine, ash, poplar, hickory and gum; complete cruiser's report.

## COTTON PLANTATION FOR SALE

3555 ACRES of good hill cotton land for sale; now in successful operation; well supplied with negro labor. The plantation lies between two branches of the Illinois Central Railroad; nearest shipping point, four miles from the dwelling. The land corners within half mile of one of the shipping points. A sufficiency of cabins for tenants, stables, cribs, cotton pens and all outbuildings. Forty-five head of mules and horses, cows, farming implements and feedstuff. Price very low. Terms good. Address A. C. Leigh, Grenada, Miss., bona-fide owner of the property.

## FARMING LANDS

**WE OWN** and offer for sale on easy terms more than 100,000 acres of farming lands in Louisiana and Mississippi. Anyone interested in Southern investments should write us direct and save the middleman's profit. The Lampton Realty Co., 405 Hilbernia Bank Building, New Orleans, Louisiana.

## FARM AND RANCH LANDS

90,000 acres Durango,	price \$1.75 per acre
80,250 acres Coahuila,	price 2.25 per acre
90,253 acres Chihuahua,	price 3.00 per acre
100,000 acres Sonora,	price 3.00 per acre
375,360 acres Durango,	price 3.00 per acre
162,783 acres Chihuahua,	price 2.00 per acre
135,147 acres Durango,	price 3.00 per acre
250,000 acres Coahuila,	price 1.50 per acre
350,000 acres Chihuahua,	price 2.50 per acre
405,000 acres Chihuahua,	price 2.00 per acre
30,000 acres Tamaulipas,	price 3.50 per acre
70,000 acres Chihuahua,	price 1.50 per acre
28,000 acres Chihuahua,	price 3.50 per acre
102,355 acres Tamaulipas,	price 2.25 per acre
169,438 acres Tamaulipas,	price 2.25 per acre
80,250 acres Coahuila,	price 2.75 per acre
1,115,640 acres Tamaulipas,	price 2.50 per acre
1,536,585 acres Sonora,	price .75 per acre
191,000 acres Sonora,	price .75 per acre
60,000 acres Durango,	price 4.50 per acre
300,000 acres Durango,	price 2.00 per acre
100,000 acres Sinaloa,	price 5.50 per acre

Cass & Fry, 30 City National Bank Building, El Paso, Texas.

## PECAN ORCHARDS

**VALDOSTA, GEORGIA, PECAN PLANTATIONS.**—Pecan culture offers largest returns; five-acre tract on easy payments assures a steady growing income; we take care of orchards for four years; 800 acres under cultivation in budded paper-shell pecans. Write for booklet. South Georgia Real Estate & Development Co., Valdosta, Ga.

**BUY A FIVE-ACRE PECAN ORCHARD** in Alabama, "The Land of Plenty." I have fifty tracts of five acres each admirably adapted to this profitable crop. I manage tracts for non-resident owners if preferred, and can furnish best of references. Investigation invited. Write for full information and terms. Oscar V. Case, Fort Payne, Ala.

## FLORIDA ORANGE GROVES

**WE HAVE FOR SALE** one of the finest groves in this State; priced \$5000 under real value; annual crop about 5000 boxes; will pay 15 per cent. to 20 per cent. yearly on investment; pay for itself in five years; 1800 trees; 11 acres; 10-room house, barn and packing-house; an ideal winter home, on beautiful lake; splendid investment; owner needs money; purchaser gets this year's crop. Write for particulars. King & King, Jacksonville, Florida.

## CABBAGE PLANTS

**AN ACRE OF CABBAGES** near a town or village will net over two hundred dollars. We have twenty-five acres in cabbage plants of all improved varieties, grown in the open air, and are positively frostproof. Will make large heads. Price, 1000 to 5000, \$1.25 per thousand. Special prices over 5000. Packed in neat boxes and tied in bunches if desired. Special express rates. The Sea Island Plant & Seed Co., Meggetta, S. C.

## FARM, FRUIT AND TRUCK LANDS

### FLORIDA

**FLORIDA** winter home and celery farm, 10 acres, subirrigated, facing St. Johns River; finest fishing and shooting; beautiful bungalow, surrounded by orange trees. Address Cecil Gabbett, Sanford, Florida.

**WHY PALMETTO LEADS.**—The 800,000 oaks of fruits and early vegetables attests the superiority of soil, climate and irrigation necessary to produce such crops. The ease with which such crops are handled by rail and water make it an ideal place for fruit and vegetable growing. The Manatee River, Terra Cina and Tampa bays furnish ideal salt-water fishing, boating and bathing. For further information address The Manatee River Board of Trade, Palmetto, Florida.

## FLORIDA FARMS ARE FORTUNES.

Our soil similar to fertile sections Iowa, Missouri; easy-payment plan. Write for booklet. Milroy Land & Investment Co., Marianna, Fla.

**WINTER HOME SEEKERS.** correspond with F. T. Adams, Pineland, Fla.; situated on Pine Island, Lee county, the most delightful climate in the world. I took 12 acres of land, cost \$50 per acre, last February, cleared it and planted in grapefruit grove. I am offered \$4000 for the grove now, but I planted it this week in onions, cucumbers, tomatoes and cabbage. I want to clear \$1000 by April 1 and still have the grove. Those wanting homes, come and see mine. F. T. Adams, Pineland, Fla.

## FLORIDA FRUIT AND TRUCK LANDS.

We offer 10-acre tracts in that part of the State of Florida lying in Hillsborough county and Lake Butler region, in the Pinellas peninsula, on the west coast of Florida, on the Gulf of Mexico; with its elevation and rolling hills is especially suited for fruits of all kinds—grapefruit, oranges, grapes, dates, figs, bananas, peaches and other fruits, as well as vegetables, potatoes, corn, beans, peanuts and all the varieties that can be produced anywhere. The Tarpon Springs district offers the most favorable conditions for farmer, home seeker and investor. Fertile lands in small tracts, easy monthly payments; guaranteed title. Investigation invited. If you want a bargain and a home in the most desirable part of Florida, write now for particulars and reservation. Tampa & Tarpon Springs Land Co., Tampa, Florida.

24 ACRES under fence; fruit, nut, shade trees; 10 miles from Tampa; furnished house, fine horse, buggy, good cow, 24 chickens; \$1800. A. C. Dickinson, Limona, Fla.

## GEORGIA

**GREAT BARGAIN IN SOUTHERN FARM AND MILL PROPERTY.**—240-acre farm, 50 acres in cultivation, 20 acres bottom land; fine orchard; new 8-room dwelling, electric lighted; best grist mill in North Georgia; good sawmill, planer and miterer, and shingle mill, all run by 40-horse-power Hunt wheel; electric-light plant with 60-light dynamo run by 20-inch turbine; on Etowah River, in Lumpkin county, Georgia, one mile from Auraria; farm worth \$2000, dwelling \$2000, water-power \$5000, mill property \$3000; all goes at the sacrifice price of \$5500, all cash, if bought quick; ideal climate; excellent locality; fine people. Address Southern Homeseekers' Bureau, Wilkesboro, N. C.

## LOUISIANA

**FORTY-ACRE TRUCK FARMS** for sale in the famous strawberry belt of Louisiana; on main line of Illinois Central Railroad. Price \$25 per acre on easy terms. Similar lands only a few miles distant are selling as high as \$75 per acre. The Lampton Realty Co., 405 Hilbernia Bank Building, New Orleans, Louisiana.

**LOUISIANA LANDS.**—We make a specialty of improved farm lands, and on application will mail free list giving price and description of more than a hundred tracts, from 18 acres to 2400 acres. Also write us for hardwood, cut-over and colonization propositions from 1000 to 60,000 acres. Grace Realty Co., Plaquemine, La.

**HEADQUARTERS FOR NORTH LOUISIANA LANDS.**—Large and small tracts, suitable for plantations, small farms, orchards or truck gardens. Climate, soil and health conditions here are unsurpassed. The staple crops of the North grow in this section alongside of cotton and cane. A great stock country. Write for particulars, stating your requirements. References, my customers and any bank in Shreveport. W. A. Jones, Authority on North Louisiana Lands, Shreveport, La.

## MISSISSIPPI

**FORTY-ACRE FARMS** in George county, Mississippi, 35 miles northwest of Mobile. This is one of the most-favored general farming sections of the entire South, and no better values can be found anywhere. Price \$25 per acre on easy terms. The Lampton Realty Co., 405 Hilbernia Bank Building, New Orleans, Louisiana.

**FOR SALE.**—540 acres good ridge and creek bottom land, two miles from Kingston, Adams county, Mississippi; only \$8 per acre, cash; a fine farm for stock and truck. D. S. Farrar, Rosedale, Miss.

500 ACRES black alfalfa land, East Mississippi; cleared; large home; 12 tenant-houses; no overflow; no malaria; \$37.50; easy terms. J. R. Haygood, Arkadelphia, Ark.

80 ACRES improved farm in Panola county, Miss., 5½ miles from railroad. This land produces one bale of cotton to the acre and 65 bushels corn per acre; two good tenant-houses; good wells. This is a bargain at the price, \$2000, on terms. J. B. Wright with J. L. Dunlap & Co., 506-507 Exchange Bldg., Memphis, Tenn.

## NORTH CAROLINA

**WANTED.**—Men to become independent farmers in Eastern North Carolina, the "Nation's Garden Spot." Lands for large profits on small capital. Write for booklet. C. Van Leuven, 815 Southern Bldg., Wilmington, N. C.

## TEXAS

**IRRIGATED FARM.**—350 acres of rich sandy loam, level, and to be irrigated from the famous Elephant Butte Dam, now in course of construction. This land can now be bought for \$35 an acre. Write us for full description. Loomis Bros., El Paso, Texas, Mexican Timber Lands.

**FOR SALE.**—235½ acres prairie land, located on Santa Fe Railroad and on public road (shelled) only 13 miles from Beaumont and one-quarter mile from Fannett; suitable for general farming or for subdividing into smaller tracts. Title perfect. Price \$27.50 per acre. Also other lands suitable for subdivision. Texas Realty Co., Beaumont, Texas.

**JAS. GOODE REAL ESTATE CO.** ranch and irrigated lands. Office, Orient Hotel, Pecos, Tex.

**A BARGAIN.**—588 acres in artesian belt, near Tuna; good dwelling, well and windmill; all fenced and good farm, ready to go to making money on. If you want it at once, write for price and terms. Geo. W. Baker, Lockhart, Tex.

**THE BLACK LANDS OF NORTH TEXAS** are justly famous as the best in the world for the production of cotton, corn, wheat and oats—not one crop, but four. Once Goodwin's Denton Creek Subdivision consists of more than 8000 acres of this land, situated on the Denton and Wise county line, 50 miles northwest of Dallas, and is offered at reasonable prices—thirty to forty dollars per acre—and upon such terms that any man with a few hundred dollars cash can easily meet. The gradual and steady enhancement in value of such land should appeal to investors, while the very easy terms upon which it is offered should appeal to the farmer without a home. Address Fount Hay, Decatur, Texas.

**2164-ACRE FARM** on Lavaca River, 5 miles north of Edna, Texas; 500 acres river bottom field; 10 small rent houses; one 10-room ranch house; private phone line out of Edna; all fenced; several wells; 300 bearing pecan trees; will sell or trade for good city property at \$35 per acre. Emil Locke, 712 Gibbs Bldg., San Antonio, Texas.

**1500 ACRES** black hog wallow prairie land; excellent cotton and corn land; a genuine bargain; \$18; easy terms. N. B. Knight & Co., Houston, Texas.

**TEXAS COAST COUNTRY BARGAIN.**—8000 acres fruit and general farm land surrounding a railroad station at small town 55 miles from city; 500 acres now in cultivation; only \$12 per acre; terms if desired. C. H. Stancliff Land Co., Houston, Texas.

**AN IDEAL SUBDIVISION PROPOSITION.** 12,000 acres of level chocolate loam in Galveston county; desirably located for orange-orchard proposition; four railroad stations on land. For quick sale I can deliver this at \$8 per acre; one-third cash, and long time on the balance. N. R. Lowry, Austin, Texas.

**ORANGE LAND.**—Texas gulf coast orange, fig and garden farms; \$15 down and \$15 per month; black loam prairie; good roads, schools, churches and markets; between Houston and Galveston. Send for illustrated literature. Agents wanted. L. Bryan & Co., Houston, Texas.

**RICHEST FARM AND FRUIT LANDS, IN FAMED BEE COUNTY, 60 MILES FROM GULF, IN THE RAIN BELT.**—Old Wilson ranch, 18,700 acres, in small tracts, 60 to 640 acres, each facing roadway; close to railroad; good automobile roads; finest black sandy loam; clay subsoil; no rock; practically no waste land; gently undulating; perfect drainage; good water; coming truck and citrus fruit section; can raise winter vegetables, then plant cotton or corn; climate balmy and healthy; gulf breeze makes summer nights delightful; no malaria nor mosquitoes; extensive development going on. Write for booklet. Low price; easy terms. If wanted, will sell 5000 or 9000 acres in a solid block at especially attractive figure. Theodore Plummer, Owner, 540 Moore Bldg., San Antonio, Texas.

**WELL-IMPROVED FARM FOR SALE.**—550 acres, adjoining and same quality as land described next above; 300 acres in cultivation, all fenced and cross fenced; excellent farm improvements; best in that section of country; ideal Southern home. For quick sale at low price. Terms, 1 to 5 years. Write for full particulars. Theodore Plummer, Owner, 540 Moore Bldg., San Antonio, Texas.

10,000 ACRES Nueces River bottom land; all subdivided into small tracts; very best truck and fruit land in Southwest Texas; will sell in small tracts or in a body. Emil Locke, 712 Gibbs Bldg., San Antonio, Texas.

**THE FRIO VALLEY WINTER GARDENS,** La Salle county, Southwest Texas, a colony of 100,000 acres level rich black sandy loam in famous artesian belt; grow oranges, figs, Bermuda onions. We are opening Fowlerton, a new town on new railroad in heart of the colony. Guaranteed improvements on town-site. A 10-acre farm and free residence lot on terms of \$15 cash; balance \$10 monthly. Write for booklet A, prices, plans, etc. Fowler Brothers Land Co., Frost Building, San Antonio, Texas.

# Classified Opportunities

[CONTINUED FROM PAGES 82 AND 83.]

**IRRIGATED LANDS.**—Parties in the North, East and Middle West interested in improved and unimproved irrigated lands and ranch property in the great Pecos section, communicate with us. Pawkett & Davis, Pecos, Tex.

**COTTON AND CORN LAND.**—12,500 acres, near two good railroads, being one mile from one and two miles from the other; splendid colonization tract; at \$10 per acre; one-fourth cash; balance 6 per cent. Address owner, Dr. C. S. Preston, 1007 Scanlan Bldg., Houston, Texas.

**RICH RIVER BOTTOM LAND ON** Guadalupe River, 496 acres, 3 miles from Cuero county seat DeWitt county, Texas; all fenced and cleared, 3 houses, barns, wells, etc.; delightful climate; excellent market facilities; a bargain; \$85 per acre; part cash. Address Agent, Box 495, Yoakum, Texas.

## VIRGINIA

**ORCHARD** containing 1700 trees, seven years old, in first-class condition, located in the western part of Augusta county; 600 acres of land goes with the orchard. This land is well adapted to fruit, and also has upon it a great deal of good saw timber. Price, \$17,000; \$5000 to \$6000 down; balance to suit purchaser. H. M. Lewis & Co., Staunton, Va.

## PASSENGER ELEVATOR FOR SALE

**FOR SALE.**—One Otis short rise hydraulic passenger elevator, installed, but has never been in use; will sell at a sacrifice. For further information write W. C. Mendor, Architect, Port Arthur, Texas.

## KEY MACHINES

**HARRISON KEY FILING JIG**, the greatest invention of the age; enables anyone to make perfect duplicate pin tumbler keys; no misfits; saves blanks; price within reach of everyone. Harrison & Co., 81 New St., N. Y.

## MACHINERY AND SUPPLIES

**FOR SALE.**—Twenty-one miles thirty and thirty-five pound relay rails, now in track; delivery about April 1. Address J. R. Hackett, general superintendent Flint River & Northeastern Railroad, Moultrie, Ga.

**SAWMILL MACHINERY FOR SALE.**—As agent for bondholders I offer, subject to prior sale, one Fay & Egan band mill, 100 H. P. boiler, 75 H. P. Brownell engine; good site at this place; three Coe veneer lathes in good order, and other equipment; one stationary circular-saw mill and nearly a million feet of timber; will sell any part of this. Quick buyers are requested to correspond with me at once. Jo A. Parker, Parma, Mo.

**WANTED.**—Every consumer in the Southwest to know that the Texas Rolling Mill Company of Fort Worth, Texas, manufactures track spikes, track bolts, machine bolts and nuts; also standard sizes of bar iron. One hundred tons always in stock. Prompt shipments our specialty. Satisfaction guaranteed.

## FINANCIAL

**8 PER CENT. 5-YEAR OKLAHOMA FARM MORTGAGES.**—Yes, rate is high, but sure and easily paid; conditions warrant it, and you get benefit; lands cheap, rich; values doubling; 25 years' experience in Southwest; 10 years bank cashier here; know people, lands, laws, resources, local conditions; never lost a mortgage nor had a title contested; abundant references; circular; investigate. J. G. James, Roff, Oklahoma.

**\$1,000,000 OF 6% BONDS**, secured by first mortgage on productive real estate, minimum value of which is eight to ten times the face of bonds. Proceeds to be used for further improvements. Property situated in one of the most resourceful and rapidly developing districts in the Southwest. Would sell all or a part of issue. Responsible parties only. Address J. L. Farley, care of Manufacturers Record, Baltimore.

**SAVANNAH, GA.**—Real estate loans paying 6 per cent. to 7 per cent. to the investor; absolutely safe. Beautiful sites for winter homes at Vernon View, the salt-water place near Savannah on the Grand Prize Course; ideal winter climate. G. A. Mercer, Law and Real Estate, Savannah, Ga. References: Any bank or trust company in Savannah.

## PROFESSIONAL

**WHAT'S THE USE TO INVENT** if another thought of it first. Get an "Engineer's Search" before you lose time and money. Inventor's Pocket Library will protect you. Sample for stamp or 25c. on approval. Catalog, Engineer Searching Co., Fleming Bldg., Washington, D. C.

## PATENT ATTORNEYS

**EUGENE C. BROWN, ENGINEER** and Patent Lawyer, Suite 40 Victor Bldg., Washington, D. C., Member Bar U. S. Supreme Court. Patents and Trademarks; Patent Suits for Infringement. Mr. Brown is especially qualified to prosecute cases in Patent Office and patent litigation from both Engineering and Legal standpoints, having been Examiner in U. S. Patent Office for nine years. Send sketch for advice.

**PATENT YOUR IDEAS.**—\$100,000 offered for one invention; \$500 for another; book, "How to Obtain a Patent" and "What to Invent," sent free; send rough sketch for free report as to patentability; patent obtained or fee returned. We advertise your patent for sale at our expense. Chandler & Chandler, patent attorneys, 978 F street, Washington, D. C.

**IDEAS WANTED.**—Manufacturers are writing for patents procured through me. Send for free 72-page guide and "Stepping Stones" (containing over 200 inventions wanted). Personal services. Clients' patents sold free. Trade-marks registered. R. B. Owen, Dept. 12, Washington, D. C.

**PATENTS Secured or Fee Returned.** Send sketch for free report as to patentability. Guide book and what to invent, with valuable list of inventions wanted, sent free. \$1,000,000 offered for one invention; \$15,000 for others. Patents secured by us advertised free in World's Progress; sample free. Victor J. Evans & Co., Washington, D. C.

## PATENTS FOR SALE

**WE HAVE** recently secured the following patents. Address all communications to Sales Dept., Victor J. Evans & Co., Washington, D. C.: B. Z. Smith, alarm bell; C. K. Lassiter, method of turning and threading bolt blanks; E. H. Rothert, induction furnace; Earl K. Smith, rock drill; T. H. Mace, washing machine; A. C. McGhee, blow torch; E. D. Howe, detachable umbrella handle; Chas. Beavis, key; Ernest Cooper, transposers for pianos; Simon H. Chelf, bicycle; Chas. W. Cones, wire splicer; Martha M. Fuller, twine holder; Wesley Ellis, pulley; James Cleveland Carr, window-cleaning device; David J. Craig, lunch basket; R. W. Ball, broom support; Washington E. Spangler, horseshoe; Otto Richter and Louis Frederick, wrapping machine; R. I. Prichard, post card; Jos. and E. S. Legris, feeder for cornshellers; Lee Lanter, chain pipe vise; P. F. Zabel and P. J. Glauz, buffers for beer faucets; Howard S. Hawley, spinning machine attach; Geo. T. Cochran, churn; John T. Holly, spring hub.

**FOR SALE.**—U. S. patent magazine smoking pipe; highest bidder gets this simple invention; make offer quick. J. Lloyd Prunty, Wamego, Kansas.

**FOR SALE.**—My right to make and sell a new triphammer; simple and strong and as good as the best; half million blacksmiths want one. S. K. Jensen, El Campo, Texas.

# PROPOSALS

## PUBLIC BUILDINGS.

## CONSTRUCTION BONDS

## MISCELLANEOUS.

### GOVERNMENT PROPOSALS

**PROPOSALS FOR CREOSOTED AND UNCREOSOTED PILES.** Sealed proposals will be received at the office of the General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 2:30 P. M. January 10, 1912, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 668-B) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State Street, New York City; 614 Whitney-Central Building, New Orleans, La.; and 1086 North Point Street, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Chicago, Ill.; St. Louis, Mo.; Mobile, Ala.; and Galveston, Tex., and Commercial Club, Tacoma, Wash. F. C. BOGGS, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

**TREASURY DEPARTMENT.** Office of the Supervising Architect, Washington, D. C., November 21, 1911. Sealed proposals will be received in this office until 3 o'clock P. M. on the 19th day of January, 1912, and then opened, for the construction, complete (including plumbing, gaspiping, heating apparatus, electric conduits and wiring, and lighting fixtures), of a one-story-and-basement building of approximately 3750 square feet ground area, brick faced, with stone and terra-cotta trimmings, for the United States postoffice at Orangeburg, S. C., in accordance with drawings and specifications, copies of which may be obtained from the custodian of site at Orangeburg, S. C., or at this office, at the discretion of the Supervising Architect, JAMES KNOX TAYLOR, Supervising Architect.

**U. S. ENGINEER OFFICE.** 920 17th St., N. W., Washington, D. C., December 9, 1911. Sealed proposals for dredging in Anacostia River, D. C., will be received here until 12 M. January 8, 1912, and then publicly opened. Information on application. W. C. LANGFITT, Lt.-Col., Engrs.

**U. S. ENGINEER OFFICE.** Trust Company Building, Galveston, Tex., November 29, 1911. Sealed proposals for repairing northeast jetty at mouth of Brazos River, Texas, will be received at this office until 12 M. December 30, 1911, and then publicly opened. Information furnished on application. EARL I. BROWN, Major, Engrs.

**U. S. ENGINEER OFFICE.** Jacksonville, Fla., December 19, 1911. Sealed proposals for removing wreck of the dredge "Hester" in channel from Clearwater Harbor to Tampa Bay, Fla., will be received at this office until 12 M. January 19, 1912, and then publicly opened. Information on application. J. K. SLATTERY, Capt., Engrs.

### NEW BOND OFFERINGS

#### \$150,000 5% Bonds

Sealed proposals will be received by O. C. Funderburk, County Judge, at Palestine, Texas, until January 1, 12 M., for \$150,000 5 per cent. 40-20 Road District Bonds, dated January 1, 1912. Certified check for \$1000 required with bids.

#### Notice to Bond Buyers

The City of Sweetwater, Nolan county, Texas, will receive sealed or open bids until the second Monday in January, 1912, at 12 o'clock noon, for the purchase of twenty-five \$1000 Street-improvement Bonds. Interest 5 per cent, semi-annually. Bonds mature in 40 years, with 20-year option. Payable at Sweetwater, Texas, or Hanover National Bank, New York, at option of holder. Certified check of \$500 must accompany each bid. Right is reserved to accept or reject any and all bids. Bonds dated October 25, 1911.

Address  
T. B. THARPE, Mayor;  
or J. W. McDUGALL,  
City Attorney of Sweetwater, Texas,  
or L. S. POLK, City Secretary.

#### Bond Sale

**COUNTY FARM-LIFE SCHOOL OF CRAVEN COUNTY, N. C.**  
\$15,000 5% THIRTY-YEAR BONDS  
FOR SALE.

Sealed bids will be received at the office of the undersigned, in New Bern, North Carolina, until Monday, 1st day of January, 1912, at 12 o'clock M., for the purchase of five thousand (\$5000) dollars Craven county bonds and ten thousand (\$10,000) dollars First township, Craven county, bonds; all of said bonds payable thirty years after date, and bearing interest at the rate of five per centum per annum, payable at such time or times, and at such place or places, and said bonds to be of such denomination, and of such proportion, and to be of such form and tenor and transferable in such way, and the principal thereof payable or redeemable at such time or times, not less than fifteen years from the date thereof, and at such place or places, as may be agreed on between the Board of Commissioners for the Craven county and the purchaser of said bonds. Certified check for one hundred (\$100) dollars as evidence of good faith must be filed with bid.

Bidders are invited to submit form of bond to be used.  
The right to reject any and all bids is reserved.  
By order of the Board of Commissioners for the County of Craven.

S. H. FOWLER,  
Clerk of Board of Commissioners  
for the County of Craven.

### \$110,000 Perry County, Alabama, Road Bonds

Sealed proposals will be received until December 27, 1911, at 12 o'clock noon, for \$110,000 5 per cent. s. a. (January and July) 20-year Road Bonds. Denomination, \$1000. Date, January 1, 1912. Bonds are exempt from all taxes. Each bid for the above issue of bonds must be accompanied by a certified check for \$1000, made payable to the order of the Treasurer of Perry County, as a guarantee of good faith. No bid accepted for less than par and accrued interest. Right reserved to reject any and all bids. For statement of bonded debt, etc., see reading notice this issue of The Financier.

J. B. SHIVERS, Judge of Probate,  
Marion, Alabama.

#### Notice

Notice is hereby given that sealed bids will be received up to the hour of four (4) o'clock P. M. on the 12th day of January, 1912, at the office of the City Clerk, in City Hall Building, Port Arthur, Texas, for the purchase of \$100,000 5 per cent. bonds of the city of Port Arthur, Texas, bearing date of the 10th day of October, 1911, in denominations of \$1000. These bonds are issued for the purpose of making street improvements, and mature on the 10th day of October, 1951.

The city reserves the right to redeem the first \$25,000 of said bonds on or after five years from their date; the next \$25,000 on or after ten years from their date; the next \$25,000 on or after fifteen years from their date, and the last \$25,000 of same on or after twenty years from their date. The bonds have not yet been printed or approved, but the record of proceedings for their issuance up to November 4, 1911, has been examined and passed, though not formally approved by the State Attorney-General and City Attorney. Bids will be received subject to approval and certificate of the bonds by the State Attorney General when presented to him for that purpose, but otherwise no bids conditioned on legality will be considered.

All bids must be accompanied by certified check for \$5000 on a bank in the City of Port Arthur, Texas, and bonds must be paid for at the office of the City Treasurer, Port Arthur, Texas, when ready for delivery. The right is reserved to reject any or all bids.

Dated at Port Arthur, Texas, this 11th day of December, 1911.

G. N. BLISS,  
Mayor Commissioner.

### SEWERS AND DISPOSAL PLANTS

#### Sewerage System and Disposal Plant

Sealed proposals will be received by the City Council of the City of Union Springs, Alabama, until 11 A. M. January 4, 1912, for the construction of a sanitary sewerage system and disposal plant, complete.

Approximately 11 miles of 6" to 15" pipe sewers and appurtenances. Plans and specifications on file with P. L. Cowan, City Clerk, Union Springs, and in the office of the Engineer, Attalla, Ala. Specifications will be mailed from either office on application. Drawings can be obtained from Engineer on deposit of two dollars.

S. P. RAINER, Mayor.  
Engineer: WILLBURN HILL, Attalla, Ala.

#### Notice to Contractors for Sewerage Disposal Plants

Springfield, Mo., November 22, 1911.  
Sealed bids will be received at the office of the City Clerk of the City of Springfield, Mo., until January 15, 1912, twelve o'clock noon, for the furnishing of excavations, labor and materials necessary for the constructing, extending and repairing the public sewers at the outlets thereof in the City of Springfield, Mo., by providing adequate means of treating and reducing the sewage at said points. Said sewage-disposal plant to be constructed of reinforced concrete, with all necessary devices for the sanitary reduction and treatment of the sewage, and for controlling and regulating the distribution of the sewage to be treated, together with all proper and necessary connections to the present outlets, and to be fitted with proper discharge devices and pipe connections after said sewage has been treated.

Said bids to be accompanied by detailed plans and specifications of the disposal plant proposed to be constructed by each bidder, and to be based upon a statement of general requirements to be furnished by the City Engineer of said city covering the general character and scope of the work.

It is the desire and intention of the City of Springfield to secure the character of disposal plant most desirable for the economical and satisfactory treatment of the raw sewage and satisfactory disposal of the same.

Each bid and proposition must be accompanied by a certified check for ten per cent. of the amount of the bid.

The successful bidder will be required to furnish bond, to be approved by said city, for the faithful performance of the contract. The right is reserved to reject any or all bids.

ROBT. E. LEE, Mayor.  
Attest: J. H. LANGSTON, City Clerk.



# PROPOSALS

PUBLIC BUILDINGS.

CONSTRUCTION BONDS

MISCELLANEOUS.

## MISCELLANEOUS

## Proposal

For furnishing and erecting machinery and equipment in whole for an Abattoir and Refrigerating Plant for the City of Columbia, S. C.

Sealed proposals will be received by the City Council for the City of Columbia, S. C., at the City Council Chamber, until 10 A. M. of Tuesday, January 9, 1912, and will at said hour and place be publicly opened and read, for furnishing and erecting on the property of the City of Columbia, S. C., machinery and equipment for a modern Abattoir and Refrigerating Plant to provide for 20 animals per day of 12 hours, 50 per cent. of which shall be cattle and 50 per cent. hogs, sheep and calves. The plant will be installed in a building to be erected by the City of Columbia, complete plans for which must be submitted by the successful bidder.

General specifications will be furnished at the office of R. J. Blalock, Council Supt. of the Department of Health, Columbia, S. C., but bidders are expected to submit their own plans and detailed specifications, which must include the requirements and guarantees mentioned in the general specifications.

Each proposal must be accompanied by a certified check for \$500, payable to and to be the property of the City of Columbia, S. C., if the proposal is not carried out.

The successful bidder shall furnish a bond acceptable to the City Council in the sum of one-half of the contract price of the plant, within ten days after the contract has been awarded to him.

The right to reject any and all bids is reserved.

R. J. BLALOCK,  
Council Supt. Dept. of Health.  
Columbia, S. C., December 4, 1911.

## Notice for Bids for Construction of County Courthouse Building at Arcadia in DeSoto County, Florida

Notice is hereby given that the Board of County Commissioners of DeSoto County, Florida, will at their office, in the Courthouse at Arcadia, Florida, on Tuesday, the second day of January, 1912, let the contract for the construction of a County Courthouse Building at Arcadia, in DeSoto County, Florida, if an acceptable bid shall have been received.

All bids shall be for the complete construction of said building, and shall be sealed and delivered to H. E. Carlton, Clerk of said county, in Arcadia, Florida, at or before twelve o'clock noon on the second day of January, 1912.

The said building is to be erected upon the site where the present Courthouse of said county stands in the city of Arcadia, in accordance with the plans and specifications therefor prepared by Messrs. Bonfoey & Elliot, Architects, and accepted and adopted by the said Board of County Commissioners.

All bids must be accompanied by a certified check for 2 per cent. of the amount of the bid submitted.

The contractor who shall submit the bid which is accepted by the said Board, if any shall be, shall within ten days from the date that the said bid is accepted, enter into a bond in a sum equal to 50 per cent. of the amount of his bid with a guaranty surety company legally authorized to do business in the State of Florida, and acceptable to the said Board, as surety thereon; said bond shall guarantee the erection and completion of said building within the time agreed upon and according to the plans and specifications, freed from liens and charges, and shall contain such other conditions as are customary in such bonds. If the successful bidder fails to furnish such bond or to execute the contract in accordance with his bid within ten days after the acceptance thereof, his check shall be forfeited to the county and immediately collected by the Commissioners as liquidated damages. The contracted price will be paid in the manner provided by statute for the payment of the construction of such building.

The Board of County Commissioners hereby reserves the right to accept any or to reject any and all bids.

Plans and specifications for the said building are on file and subject to examination at the office of H. E. Carlton, Clerk of said county, at Arcadia, Florida, and at the office of Bonfoey & Elliot, Architects, No. 509 Franklin St., Tampa, Florida. Any contractor away from the said places may obtain a set of said plans and specifications by requesting the same and depositing with H. E. Carlton, Clerk, of Bonfoey & Elliot, Architects, a certified check for \$50, said check to be returned to the contractor upon the return of said plans and specifications, express being paid both ways by the contractor.

This notice is given by order of the Board of County Commissioners of DeSoto County, Florida, and is dated this 7th day of December, 1911.

H. E. CARLTON,  
Clerk of said Board and of  
DeSoto County, Florida.

## Cast Iron Pipe

Sealed proposals will be received by the Board of Public Works of the City of Tallahassee, Fla., until 7:30 P. M. December 23, 1911, for furnishing f. o. b. cars at Tallahassee, Fla., approximately ninety-six tons of 4, 6 and 8-inch cast-iron water pipe, either "Bell and Spigot" or "Universal," and six tons of fittings.

The Board reserves the right to vary from the stated quantities and to reject any or all bids.

Address communications to the Engineer.  
D. R. COX,  
Secretary.

C. H. ELLIS,  
Engineer.

## Proposals for Paving, Etc.

Sealed proposals will be received at the office of the undersigned, in the City of Johnson City, Tenn., until 7 P. M. February 1, 1912, for constructing bridges, sewers, storm-water drains, concrete curb and gutter and street paving with brick, asphalt, bitulithic, wood block, granitoid or concrete, for Improvement District No. 9, according to plans and specifications in the office of the City Engineer.

Approximate Quantities.  
600 cubic yards Excavation.  
5000 square yards Street Paving.  
2000 linear feet Curb and Gutter.  
1350 linear feet 6" Sewer Connections.  
140 linear feet 12" T. C. Drains.  
2 Catch Basins.  
100 cubic yards Reinforced Concrete to cover creek 28 feet wide.

Each bid must be accompanied by a certified check equal to 10 per cent. of the amount of the bid as a guarantee of the good faith of the bidder.

Bids are asked for payable either in cash or 5 1/2 per cent. bonds, at the option of the city.

The right is reserved to reject any or all bids.

Bids will be opened at a regular meeting of the City Council Thursday, February 1, 1912, at 7 P. M.

P. F. McDONALD,  
City Commissioner.  
WM. R. FOLDER,  
Recorder.  
Johnson City, Tennessee.

## Sealed Proposals Will Be Received for the Following Items:

1. Exterior Stone and Setting of Same.
2. Common Brick Work, Face Brick Work, Glazed Brick or Tile Work, Terra-Cotta Partitions and Furring.
3. Exterior Ornamental Terra-Cotta and Setting of Same.
4. Common Concrete, Area and Basement Floors, Granolithic Finish, Cinder Concrete Fill.

REQUIRED IN THE COURTHOUSE FOR FULTON COUNTY, TO BE ERRECTED ON THE SOUTHEAST CORNER OF SOUTH PRYOR AND EAST HUNTER STREETS, IN ATLANTA, GA., FOR FULTON COUNTY, GEORGIA.

1. Proposals for each of the above items, under separate cover, to be addressed to the Commissioners of Roads and Revenues of Fulton County, Georgia, and will be received until twelve o'clock noon January 25, 1912, for the furnishing of all material and labor required in each of the above separate items on the above building, as more minutely described in the plans and specifications on file and open for investigation at the office of the said Commissioners and at the office of the Associate Architects, A. Ten Eyck Brown and Morgan & Dillon, 607-10 Forsyth Building, Atlanta, Georgia.

2. Copies of drawings may be obtained from the Architects at the above address upon a deposit of a certified check for \$20 for each set, check to be returned to maker upon the receipt of drawings and specifications in good condition.

3. All bids must be submitted on special proposal blanks furnished by the Architects, or they will not be considered, accompanied by a certified check for 2 per cent. of the total amount of each bid, payable to the Commissioners of Roads and Revenues, Fulton County, Georgia, as a guarantee that the successful bidder will enter into a contract according to said plans and specifications and execute a bond for double the amount of each contract within ten days after the notification of the acceptance of his bid, failing which said certified check shall become forfeited to the Commissioners of Roads and Revenues as liquidated damages.

4. The Commissioners of Roads and Revenues of Fulton County, Georgia, reserve the right to reject any and all proposals.

5. By order of the Commissioners of Roads and Revenues of Fulton County, Georgia.

(See official advertisements in Atlanta Journal.)  
(Signed) H. E. W. PALMER, Chairman,  
Commissioners of Roads and Revenues, Fulton County, Georgia.

November 25, 1911.  
H. M. WOOD, Clerk.

## Notice to Contractors

Sealed bids will be received by the undersigned at his office in Vidalia, La., at 10 o'clock A. M. Tuesday, January 2, 1912, for the erection of a brick school building at Vidalia, as per plans and specifications on file with the undersigned and at the office of Stevens & Nelson, Architects, No. 1109 Hennen Bldg., New Orleans. Bids must be accompanied by certified check for \$500, payable to the undersigned, to guarantee execution of contract and bond. Checks of unsuccessful bidders will be returned. Bids to be endorsed "Bid on Vidalia School." School Board reserves the right to reject any and all bids.

D. C. STRICKLER,  
Superintendent School Board.

## Proposals for Water-Works, Albemarle, N. C.

Sealed proposals will be received by the Mayor and Board of Commissioners of the town of Albemarle, N. C., until 8 P. M. January 16, 1912, for Building a System of Water-Works.

The work will embrace pumping station, clear-water basin, deep well, 2 motor-driven turbine pumps, 750 g. p. m. each, switch-board, and one mile of pole line, tower and tank, and about 5 miles of 6 to 10-inch pipe line.

Plans and specifications will be on file at the office of the Mayor in Albemarle and at the office of the Engineer in Charlotte. Copies of specifications, bidding blanks, etc., may be obtained from the Engineer. A complete set of blueprints will be furnished on payment of three dollars to cover the cost. No bid will be considered unless accompanied by a certified check for not less than 5 per cent. of the amount of bid as an evidence of good faith.

The right is reserved to reject any or all bids.

M. J. HARRIS, Mayor.  
J. E. EWING, Clerk.

Engineer:  
GILBERT C. WHITE,  
Charlotte, N. C.

## BRICK FACTORY BUILDING AND FACTORY SITE FOR LEASE OR SALE ON EASY TERMS

Two-story brick factory building 200x60 feet, with ells, giving total floor space 30,000 sq. ft., with power, light, heat and water, automatic sprinkling system, 150 H. P. Corliss engine and two boilers. Site 385x200 feet, within corporate limits; abundant help nearby; accessible to electric cars, railroad and steamboat lines.

BARTON MYERS,

NORFOLK, VA.

## BALTIMORE

can now boast of an Electric Power Service that is unsurpassed by any other city.

The largest single Storage Battery in the world has just been installed here and that completes a system that absolutely precludes any interruption of service to the business districts.

With the great water power station at McCalls Ferry, Pennsylvania, and the steam generating plant at Westport, this city has an ample Electric Power supply for years to come.

Besides this Baltimore manufacturers have the Cheapest Electric Power on the Atlantic Seaboard.

These facts are of vital interest to outside manufacturers. Low Power rates and an unfailing supply. Think them over.

We will be pleased to send you any statistics or other data about our city that you may wish,—lists of available factories and plant sites included. Write to

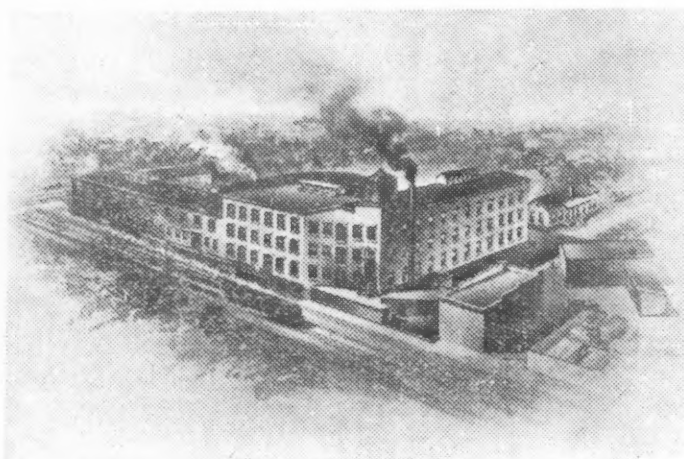
INDUSTRIAL POWER DEPARTMENT

The Gas & Electric Company

BALTIMORE

## Special Advertisements of General Interest.

### FOR SALE OR LEASE



Manufacturing plant or warehouse on Bellwood Avenue, Southern Railway and A. B. & A. R. R., containing two acres of land, with 600 feet railroad frontage, three-story brick mill constructed building, 42,000 square feet floor space; elevator, electric light plant, steam heat and modern plumbing. Has 100 H. P. engine and 125 H. P. boiler. Office building separate. Owner retiring on account of ill health.

**H. M. BEUTELL, Owner - - ATLANTA, GA.**



#### UNDEVELOPED ORCHARD PROPERTY FOR SALE

About ten thousand acres of good undeveloped orchard land, situated in Roanoke, Craig and Montgomery counties, Virginia. This land is well adapted to the cultivation of red apples, peaches, grapes and other horticultural products. Tract contains more than enough timber to pay for it. Price \$3 per acre on reasonable terms. If interested, write F. H. LaBaume, Agricultural and Industrial Agent, Roanoke, Va., referring to File M-3086.

#### OPENING FOR WHOLESALE DRUGGIST

A progressive Virginia city of 40,000 population, having excellent transportation facilities for reaching a large and rapidly developing territory, affords an exceptional opportunity for the establishment of a wholesale drug house. It will require a company of not less than \$50,000 capital to establish this enterprise. A part of this capital can be secured by the proper parties in the city. If interested, write F. H. LaBaume, Agricultural and Industrial Agent, Roanoke, Va., referring to File M-2608.

Write for copy Southern Homeseeker and Investors' Guide, Business Opportunities, large county map of Virginia, Orchard Possibilities and other publications issued by this Department.

ADDRESS ALL COMMUNICATIONS to F. H. LaBaume, Agricultural and Industrial Agent, Norfolk & Western Railway, Roanoke, Virginia.

### Stone Quarry & Crushing Plant

FOR SALE

Location, Wake county, North Carolina. Steady demand for entire output at good prices. No other quarry in this section. Capacity, 300 tons crushed stone per day. Will sell cheap.

AMERICAN STONE CO.,  
P. O. Box 538, Richmond, Va.

### Kentucky Fire-Clay Lands

Will sell or lease on favorable terms, or join with other parties in building a plant in Eastern Kentucky. Good opening for people wishing to engage in this business or enlarge their present holdings. A good proposition for shipping crude clay for fire brick and glass pots; best quality; economical mining conditions; good shipping facilities; large and profitable market. Address

"KENTUCKY," care Manufacturers Record.

### Complete Saw Mill Plant, Dry Kiln and Logging Equipment

FOR SALE

Mill has a daily capacity of 25,000 feet. Logging outfit consists of Locomotive, three and one-half miles of tramroad and six log trucks. Eighteen to twenty million feet of choice Pine timber, well blocked. Mill located about 35 miles south of Savannah, on the Seaboard Air Line Railway. Fifteen to twenty million feet additional timber can be had in easy reach of this plant. For full particulars address

ALBERT FENDIG & CO., Brunswick, Ga.

If you wish to keep posted on the progress

of the South, read the

MANUFACTURERS RECORD.

Price \$4 a year, or six months for \$2.

## SUBJECT TO LEASE



### Hotel Dempsey

Midland City Hotel Company  
OWNERS

MACON, GEORGIA

WILL BE COMPLETED BY

October 1, 1912

SUBJECT TO LEASE

BY

EXPERIENCED HOTEL MAN

FOR TERM OF

TEN YEARS OR MORE

WILL CONTAIN

Over 200 Rooms

All Modern Improvements

ADDRESS

N. M. BLOCK, Chairman

### GEORGIA FARM LAND FOR SALE

About 10,000 acres fertile farm land within 38 miles of Savannah, Georgia; healthy location and good water, suitable for colonization. A good stand of yellow pine timber, estimated at 20,000,000 feet and thousands of cords of wood. Located for seven miles on two main line railroads, giving low freight rates, secured by water transportation competition, to Northern markets, with all-year markets close at hand. Will not divide tract. Will sell outright or put in property and take interest with financially able developing company.

W. W. ROBERTSON, Owner

NORFOLK, VA.

### CREDITORS SALE

#### Valuable Table Manufacturing Plant

The Creditors' Committee of the Virginia Table Works, Inc., Marion, Va., will offer for sale to the highest bidder, Wednesday, January 10th, 1912, at their plant in Marion, Va., all the real estate, buildings, machinery, standing timber, equipment, finished tables of every description belonging to this valuable plant. For full information, address

W. L. LINCOLN.

MARION, VA.

### FACTORY SITES

### FARM LANDS

#### Business Opportunities, Timber Lands, Realty Investments

We will take pleasure in submitting information pertaining to either of the above departments.

S. L. NUSBAUM & CO.

600 Citizens' Bank Bldg. Norfolk, Va.

### For Sale

Completely equipped foundry at South Pittsburgh, Tennessee, including a practically new Whiting 72-inch Cupola and Sturtevant Blower. Also Engine and Boilers. Machine shop and office building.

Foundry floor, approximately, 100 feet by 300 feet. Ground, 5.2 acres.

Located on Nashville, Chattanooga and St. Louis Railroad.

Adequate side tracks for unloading raw material and shipping finished material.

Cheap labor market and convenient to raw material.

Formerly used as a foundry for soil pipe and soil pipe fittings. Suitable for general work.

Will make most advantageous terms.

Address, THE CENTRAL FOUNDRY COMPANY, 90 West Street, New York.

### Manufacturers and Wholesalers

Rated \$10,000 to \$20,000 and higher.

### DO YOU WANT YOUR CUSTOMERS TO DISCOUNT YOUR INVOICES?

If so, why not give us the discounts you offer to your customers for cash? You can place your credit sales upon an 80% cash basis AT THE EXPENSE OF YOUR CUSTOMERS through their not taking your discounts.

We will pay you 80% CASH AT TIME OF SHIPMENT and carry their open accounts until paid, paying you the 20% reserve, as each account is collected by you. You sell your invoices, therefore, borrow no money and have no obligation to meet as your customers pay us off.

You mail your INVOICES DIRECT TO YOUR CUSTOMERS WITHOUT ANY NOTICE THEREON of the sale of their accounts to us. You act as our AGENT to collect all accounts sold us, endorsing your customer's original remittances to us, and by us to our Banks as "V. G. Dunnington, Treasurer," thereby our name does not appear thereon. We can send you Bank Drafts instead of our checks, and all publicity is avoided.

Our total charges are only 1% on the face of invoices paid within 15 days from date of our purchase, 2% within 30 days, and then 1% a month until paid. We charge NO INTEREST OR EXCHANGE on checks and carry accounts until they are SIXTY OR NINETY DAYS PAST DUE.

We are now using about ONE MILLION DOLLARS CASH in the purchase of some FIVE MILLION DOLLARS of open accounts a year from large and well-rated firms, whose names we keep in the strictest confidence.

Why not give our plan a trial NOW with \$5000 to \$25,000 of your present open accounts?

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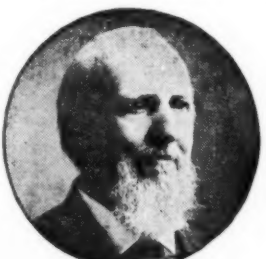
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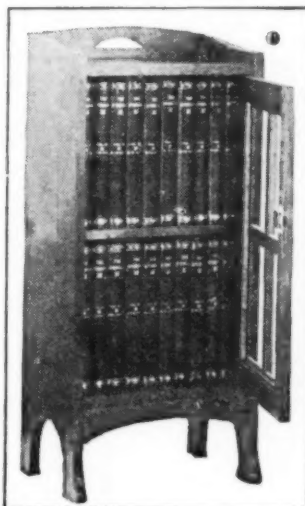
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Write for Prices.

PFANNMUELLER ENGINEERING CO.,  
3701-3-5-7 So. Ashland Ave., Chicago.

### CORLISS ENGINES

1 18x36 Bates.  
1 16x42 Allis.  
1 16x42 Brown.  
1 18x42 Lane & Bodley.  
1 20x48 Wetherill.  
1 22x48 Hamilton. 1 22x48 Allis.  
1 24x42 Atlas. 1 28x54 Hamilton.  
Automatic Engines of all sizes.  
1 40-ton Corliss Engine Type De La Vergne Ice Machine.  
1 60-ton Corliss Engine Type De La Vergne Ice Machine.  
1 lot Brewery Tanks.  
Woodworking Machinery of all kinds.  
Belting, Shafting, Pulleys and Hangers.

CLEVELAND BELTING & MACH. CO.,  
Cleveland, Ohio.

### BARGAINS IN STOCK

Immediate Delivery, Rebuilt and Guaranteed

#### ENGINES

Two (2) 18"x34"x48" Tandem Compound Greene, 150 lbs. steam.  
28"x18" Naylor Corliss.  
25"x18" Wetherill Corliss, 150 lbs. steam, extra heavy.  
22"x18" Naylor Corliss.  
20"x12" Frick Corliss, "Eclipse" pattern.  
18"x36" Hamilton Corliss.  
One (1) each 14"x16", 16½"x18", 14"x28" and 12"x24" Buckeye.  
One (1) 15"x16" New York Safety Center-Crank.  
One (1) 9"x15"x9" Westinghouse Automatic Compound.  
Large assortment of Slide-Valve Engines, all sizes.

#### BOILERS

One (1) 250 H. P. Sterling, New.  
Two (2) 200 H. P. Heine W. T.  
One (1) 72"x18" H. R. T., 100 lbs. steam.  
One (1) 48"x20" H. R. T., 125 lbs. steam.  
One (1) 250 H. P. Berry, 160 lbs. steam.  
Large assortment of Locomotive and Vertical Boilers.

#### AIR COMPRESSORS

18"x18"x24" Ingersoll-Sergeant.  
14"x9"x8"x12" Ingersoll Two-Stage, "Imperial" type.  
14½"x9½"x8"x8" Ingersoll Two-Stage, belt driven.  
12"x12"x12" Laidlow-Dunn, steam driven.  
And many others.

#### HEATERS

1000 H. P. Berryman Gleaner.  
One (1) each 800 H. P. Wheeler, 500 H. P., 400 H. P., 300 H. P. Berryman.  
200 H. P. Wetherill.  
250 H. P. Cochrane.

#### PUMPS

Two (2) 17"x28"x14"x24" Snow Duplex Pressure, steel water ends.  
One (1) 18"x38"x18" Snow Duplex.  
Two (2) 18"x10½"x10" Worthington Duplex Pumps.  
One (1) 10"x12" Duplex Double-Acting Smith-Vaile Power.  
6"x6" Davis Plunger.  
500 H. P. Conover Jet Condenser, complete.  
Vacuum and Condensing Pumps, all sizes.

#### SPECIAL

1 No. 4 Austin Crusher.  
6 Sand-Blast Machines.  
1 36" gauge Electric Locomotive.

#### MACHINE TOOLS

Large stock of Machine Tools. Note my adv. in last week's issue. Send for Special List. Correspondence solicited.

**HERMAN L. WINTERER**

908-910 Beach St. Philadelphia, Pa.

## SECOND-HAND Machine Tools

### LATHES.

10x44 Lodge & Davis, chucks fitted.  
11x4 Mann, R. & F.  
14x6 Davis, plain rest.  
14x8 Le Blond, plain rest, chuck, P. C. F.  
16x6 Reed, compound rest, P. C. F.  
16x8 Fay & Scott, plain rest, P. C. F.  
18x8 Lodge & Shipley, patent head chuck.  
20x8 McMahon, compound rest, chuck.  
20x8 Fay & Scott, compound rest, P. C. F.  
24x14 Reed, high speed.  
27x12 Pratt & Whitney, C. R., P. C. F.  
28x10 Putnam, C. R., P. C. F.  
28x10 Gleason, compound rest, taper.  
30x12 Pond, C. R., P. C. F.  
32x17 Bement-Miles, C. R., triple geared.  
36x16 Reed, compound rest, P. C. F.  
40x18 Newark, triple geared, C. R., P. C. F.  
46x35 Fitchburg, T. G., C. R., P. C. F.  
102x35 Bement, compound rest, T. G.  
21x14 Powell, compound rest, P. C. F.  
24x14 Niles, compound rest, P. C. F.  
26x13 Fitchburg, compound rest, P. C. F.  
84x20 Fitchburg, C. R.

### SCREW MACHINES.

2x24 Jones & Lamson, flat turret.  
20x6 Hardner & Oliver, friction head.  
No. 2 3/4" Warner & Swasey, wire feed.  
No. 2 1/2" Garvin, wire feed, friction head.  
No. 1 Garvin, wire feed.  
3/4" National Acme, automatic.  
No. 6 Brown & Sharpe, friction head.  
1" Smurr & Kamen, wire feed.  
1/2", 3/4", 1" and 2" Pratt & Whitney automatics.  
No. 3 2" Pratt & Whitney, wire feed.  
No. 2 3/4" Pratt & Whitney, wire feed.  
No. 1 7-16" Pratt & Whitney, wire feed.

### MILLERS.

No. 2 Cincinnati, plain.  
No. 4 Cincinnati, plain.  
No. 2 Le Blond, plain, back gears.  
No. 2 Pratt & Whitney, Lincoln pattern.  
No. 24 Brainerd, plain, back gears.

No. 1 Cincinnati, universal.  
No. 2 Brown & Sharpe, plain.  
No. 3 Cincinnati, plain.  
No. 12 Brown & Sharpe, manufacturers.

### DRILLS.

20" Prentice Bros., power feed.  
15" Slate, sensitive.  
4" Bickford, plain radial.  
No. 25 Foote-Burk, high speed.  
F 12" Baker Bros.  
10-spindle Gardam, adjustable.  
40" New Haven, sliding head, back gears.  
30" Gang, plain radial.  
5" Bausch, plain radial.  
7-spindle Slate, bedstead.

### SHAPERS.

12" Gould & Eberhardt, crank.  
15" and 20" Hendey, friction.  
13" Lodge & Davis, crank.  
28" Cincinnati, geared.

### MISCELLANEOUS.

Boring Mill, 37" Bullard, 2 heads.  
Grinder, Sellers, universal tool.  
Planer, 36x36x8 Betts, 1 head.  
Planer, 26x26x8 Pond, 2 heads.  
Planer, 36x36x12 Betts, 4 heads.  
Planer, 48x48x8 Farrell, 1 head.  
Planer, 48x48x15 Pond, 3 heads.  
Boring Mill, 10" Pond.  
Grinder, Walker, electric surface.  
Grinder, No. 2 1/2" Bath, universal.  
Gas Engine, 8 H. P. Fairbanks.  
Hammer, 50 lbs., Bradley, compact.  
Hammer, 1000 lbs., Pratt & Whitney, drop.  
Gear Cutter, 16x4 Gould & Eberhardt.  
Grinder, 12x42 Landis, universal.  
Pipe Machine, No. 6 1/2", 6", Merrill.  
Slotter, 16", Bement, motor driven.  
Keyseater, No. 2 Davis.  
Brake, 8" Niagara.  
Pipe Machine, 3" Jarecki.  
Gas Furnace, No. 17 American.

## Prentiss Tool & Supply Company

149 Broadway, New York

## FOR SALE

Several Carloads  
of Swedish Scrap

The Capewell Horse Nail  
Company  
HARTFORD, CONN.

We have for sale the following  
Bundy Steam Traps:

- 1 No. 105 Trap, 125 gallons per dump.
- 1 No. 106 Trap, 205 gallons per dump.
- 1 No. 108 Trap, 700 gallons per pump.

Temperature 180 degrees.

These traps have never been used and are  
in perfect condition. Make offer on one or all.

MEMPHIS ARTESIAN WATER DEPARTMENT  
Memphis, Tenn.

### REAL LIVE BARGAINS

In Lumbering Equipment at  
Edgewood, near Kingston, N. Y.  
1 complete 7-ft. Clarke Band Mill, 35,000 ft.  
cap. per day.  
1 Four-Side Planer.  
1 Lath Mill.  
32" Circular Lumber Resaw.  
Filing-Room Machinery, complete.  
1 Circular Mill, 15,000 ft. cap. per day.  
1 Circular Mill, 20,000 ft. cap. per day.  
14 Heavy Work Horses.  
20 pr. Heavy Logging Sleds.  
Logging Tools.  
Harness and woods equipment to handle  
35,000 ft. of logs per day.  
1 pr. Flory Hoisting Engines, 8x10" cylinder,  
with single 3-ft. drum to hold 6000 ft. 3/4"  
rope; A No. 1 condition.  
1 Reversible Engine, 12x15" cylinder, with  
3 1/2" drum to hold 7000 ft. 3/4" rope.  
1 60 H. P. Upright Boiler.  
60 tons 25-lb. Rails (steel).  
For attractive prices on the above kindly  
communicate with SUPERINTENDENT.  
FENWICK LUMBER CO.,  
Edgewood, Greene Co., New York.

### FOR SALE — SECOND HAND PIPE

PIPE for pipe lines, PIPE for drilling.  
PIPE for casing, PIPE for tubing.  
Complete stock, sizes 1 to 12".

Also second-hand engines, pumps, boilers,  
cypress and steel tanks, complete well drilling  
rigs.  
TEXAS SUPPLY CO., Beaumont, Tex.

## Do You Need MACHINE TOOLS?

We have a large and well-selected stock in  
our warehouse at prices that will materially  
reduce your equipment bills. Let us give  
you details of some of the following tools.

### LATHES

1 60"x16" "Fifield," internally geared  
face-plate.....\$1400.00  
1 48"x12" "Fifield," internally geared  
face-plate.....1250.00  
2 42"x32" "Draper," one has taper at-  
tachment, \$1400.00 each; taper  
\$100.00 extra.  
1 40"x18" "Fifield," internally geared  
face-plate.....1500.00  
1 40"x18" "Fifield," internally geared  
face-plate.....1250.00  
1 33"x16" "Fitchburg".....700.00  
1 32"x32" "Fifield".....1200.00  
1 30"x14" "Fifield".....475.00  
1 20"x10" "Perkins".....400.00  
1 22"x10" "Fifield".....350.00  
1 16"x8" "LeBlonde".....225.00  
3 14"x6" "LeBlonde," each.....225.00

### PLANERS

1 52"x52"x23" 9" "Betts," one head.....1000.00  
1 42"x36"x12" "American," open side.....2250.00  
1 40"x40"x10" "Powell," one head.....900.00  
2 20"x20"x6" "Sellers," one head.....190.00

### RADIAL DRILLS

1 72" "Bickford," plain.....650.00  
1 54" "Bickford," universal.....525.00  
1 54" "Bickford," plain.....750.00

### BORING MILLS

1 60", one head, vertical.....400.00  
1 37" "Bullard," two heads, vertical.....800.00  
1 54" "Newton," horizontal.....450.00

### PIPE MACHINES

1 10" "Curtis & Curtis".....250.00  
1 6" "Cox & Sons".....400.00  
1 No. 2 "Eaton, Cole & Burnham," 1  
to 4".....350.00  
1 No. 2 "Signal & Keeler".....240.00

### PRESSES

2 No. 2 1/2" pattern "Phila. Machine Co." 165.00  
1 No. 2 "Bliss".....450.00  
1 P-1 "Ferracute".....115.00

### HAMMERS

1 1500-lb. steam "McDougall & Potter".....900.00  
1 800-lb. steam drop "Bement-Miles".....650.00  
1 500-lb. "Champion Beaudry".....450.00  
1 400-lb. "Champion Beaudry".....350.00  
1 150-lb. belt-power "Scranton".....325.00

### GEAR CUTTER

1 72" "Gould & Eberhardt".....850.00

Our large, well-planned and lighted ware-  
house makes critical examination of any tool  
easy and affords the best facilities for quick  
and safe handling of heavy pieces.

L. F. SEYFERT'S SONS, Inc.  
437 - 439 - 441 N. 3d St., Philadelphia

## GENERATOR SET

Direct connected to  
HAMILTON CORLISS ENGINE, 24x48x48,  
CROSS COMPOUND, with HEAVY-  
DUTY FRAME.

Horse power .....1000  
R. P. M. ....83.3  
Steam pressure.....125 lbs.  
Flywheel.....29 ft. by 18 in.  
High-pressure steam connection.....9 in.  
Exhaust connection.....16 in.  
Over-all dimensions.....23 ft. by 32 ft.

Direct connected to  
A 750 K. W. GENERAL ELECTRIC GEN-  
ERATOR of A. R. Type, Three Phase.

Cycles .....25  
Class 36-550-875.  
Volts .....6000  
Amperes .....86  
Delta wound.

The whole unit is in about as good condi-  
tion as new.

Thoroughly overhauled recently. The fol-  
lowing replaced: New high-pressure cylinder;  
low-pressure cylinder bored; new piston  
and piston rods; new metallic packing; dou-  
ble eccentrics; new main journals; new  
crank-pin journals; new crosshead slippers  
and new crank-pin brasses.  
Offered for sale on account of the room  
being needed for the installation of a larger  
unit.

H. F. FRASSE, 360 Pearl St., BROOKLYN, N. Y.

## ENGINES

at your own price

ALL OVERHAULED

20x48 Wheelock Corliss.  
14x20 Payne Improved Cor-  
liss, 4-valve.  
12x12 New York Safety.  
14x18 Erie Engine.  
10x12 Nagle Engine.  
No. 3 Pressure Blower.

The stock of a prominent  
dealer who is retiring.

Pipe & Contractors  
Supply Co.

3 DOVER STREET NEW YORK

In revising our manufacturing equipment, we  
find the following first-class

## Used Machine Tools

which we offer at attractive prices

### ENGINE LATHES

14 in. x 6 ft. Flather, Q. C. G.  
16 in. x 6 ft. Hendey, Q. C. G.  
16 in. x 6 ft. Pratt & Whitney, Q. C. G.  
16 in. x 8 ft. Reed.  
18 in. x 6 ft. Lodge & Shipley, Q. C. G.  
18 in. x 8 ft. Lodge & Shipley, Q. C. G.  
18 in. x 10 ft. Lodge & Shipley, Q. C. G.  
20 in. x 8 ft. Lodge & Shipley, Q. C. G.  
20 in. x 10 ft. Lodge & Shipley, Q. C. G.  
22 in. x 14 ft. Lodge & Shipley, Q. C. G.  
24 in. x 8 ft. Lodge & Shipley, Q. C. G.  
24 in. x 10 ft. Lodge & Shipley, Q. C. G.  
27 in. x 10 ft. Lodge & Shipley, Q. C. G.  
36 in. x 12 ft. Lodge & Shipley, Q. C. G.  
36 in. x 14 ft. New Haven.

### SPECIAL LATHES

No. 1 x 7 ft. Lodge & Shipley Chucking Lathe.  
No. 3 Lodge & Shipley Rapid Reduction Lathe.

### PLANERS

36 in. x 36 in. x 10 ft. Sellers.

### METAL SAWS

No. 3 Nutter-Barnes Cold Saw.  
Franklin Cold Saw, 3 1/2 in. capacity.  
Globe Power Hack Saw, 3 in. capacity.  
Universal Power Hack Saw, 4 in. capacity.

### MISCELLANEOUS MACHINES

Whitton Centering Machine.  
Mumford 12 in. x 40 in. Molding Machine.  
Write for complete description with prices  
of machines in which you are interested.

THE LODGE & SHIPLEY MACHINE TOOL CO.  
CINCINNATI, OHIO

## Machinery and Contractors Supplies

Duplex and Jet Pumps, Boilers and Re-  
ceivers, Lathes, Cranes, Punches and Shears,  
Rolls, Steam Belt or Gas Driven Electric  
Generators, Searchlights, Buckets, Norden  
Safety Hooks.

BALTIMORE METAL MACH. & SUP. CO.,  
903 Bromo-Seltzer Tower Bldg., Baltimore, Md.

If you wish to keep posted on the progress

of the South, read the

MANUFACTURERS RECORD.

Price \$4 a year, or six months for \$2.

## Railroad and Contractors' Equipment and Supplies.

Georgia Car & Locomotive Co.

ATLANTA, GA.

LOCOMOTIVES, FREIGHT CARS,  
PASSENGER COACHES

LARGEST STOCK EQUIPMENT IN U. S.

## Hoisting Engine

FOR SALE

Two three-drum tandem Lidger-  
wood Hoisting Engines, size 14x  
18, D. C., reverse link motion and  
friction drums, equally as good  
as new.

HENRY A. HITNER'S SONS CO.  
PHILADELPHIA, PA.

## LOCOMOTIVE CRANE

FOR SALE—One industrial 8-wheel stand-  
ard-gauge Locomotive Crane, 10-ton capacity,  
equally as good as new. Crane equipped for  
clamshell bucket, self-propelling, 50' steel boom.  
HENRY A. HITNER'S SONS COMPANY,  
Philadelphia, Pa.

### FOR SALE

150 Steel Hopper Cars, 50 Tons. Refrig-  
erator, box, hopper bottom, flat bottom,  
and flat bottom gondolas, with coke racks  
and flat cars. Give us your wants.

### THE MALES COMPANY

26 Cortlandt St., New York City, 82 Perlin Building,  
Cincinnati, O.



# OLIVER DUMP & SPREADER CARS

(DUMPED BY AIR OR HAND)

Only AIR DUMP CAR under absolute control of operator. Can be brought back to upright position, after passing center of gravity, before entire contents of car have been unloaded. This admits of equal distribution of material on both sides of track. Write THE WM. J. OLIVER MFG. CO., KNOXVILLE, TENN., AND 50 CHURCH ST., NEW YORK, N. Y.

## Traveling Derrick

Gauge 31' 5". Mast 37' 6". Boom 75'. Lidgerwood No. 218, 10x12" three-drum hoisting engine with boiler and independent swinging engine. Levers mounted in quadrant. American derrick fittings. 1½ cubic yard clam shell bucket. Strictly first-class condition. Location, Erie, Penna. Price right.

E. C. SHERWOOD, 46 Church Street, NEW YORK

### BUCYRUS CO.

Steam Shovels, Dredges,  
Drag Line Excavators, Wrecking Cranes,  
Unloading Plows, Loco Pile Drivers.

P. O. Box N. So. Milwaukee, Wis.

J. B. ELLIS, President

The Union Iron Works Co.  
SELMA, ALA., U. S. A.

Manufacturers of  
Engines, Boilers, Live Rolls  
Locomotive Rebuilding a Specialty

### FOR SALE

2 Second-hand Gates Crushers (1 large and 1 small) with crusher machinery, etc.

SEABOARD AIR LINE RAILWAY  
H. C. MACKLIN, Purchasing Agent,  
PORTSMOUTH, VIRGINIA

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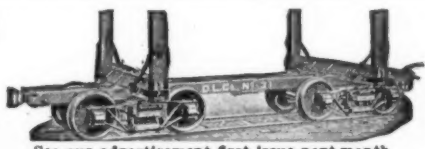
### LOGGING CARS



### LOGGING CARS

MADE BY  
RALEIGH IRON WORKS CO.  
RALEIGH, N. C.

Reduce Cost of Carrying Logs to the Mill



See our advertisement first issue next month.

## FOR SALE PIPE

### Second-Hand

All sizes, ½ inch to 24 inches  
Furnished with new threads and couplings, suitable for all practical purposes; large stock constantly on hand, together with a general assortment of used contractors' machinery.

MARINE METAL & SUPPLY CO.

167 South St.

NEW YORK

### CONTRACTORS' EQUIPMENT

2 Little Giant Traction Shovels.  
4 10"x16" 62½ gauge Locomotives (will change gauge to suit).  
2 9x14 36" gauge Locomotives.  
1 7x12 36" gauge Locomotive.  
1 No. 5 Champion Crusher Plant.  
1 10-ton 4-wheel Locomotive Crane.  
2 9x10 Lidgerwood Cableway Engines.  
Hoisting Engines, Derricks, Boilers, Pumps.  
PITTSBURGH MACH'Y. & EQUIPMENT CO.,  
805 Fulton Building, Pittsburgh, Pa.

### FOR SALE

Road building plant, including stone crusher and ten-ton roller. Address  
CROSS & RICE,  
Care Manufacturers Record.

### Air Compressors in First-Class Condition FOR SALE

1 Laidlaw-Dunn-Gordon Two-stage,  
Class II, 2300 cu. ft. \$3000.00  
1 Laidlaw-Dunn-Gordon Two-stage,  
4000 cu. ft. 5500.00  
1 Straight-line Single-stage, 1200 cu.  
ft., McKiernan 1200.00  
Address at once  
LITTLE CAHABA COAL CO., Piper, Ala.

### To Reach Machinery Buyers

### Use the Recognized Channel

You may be making the "very best ever" in the way of machinery or other equipment for mills, factories, foundries, railroads, etc., but to sell your products you've got to advertise. If you want to sell to the South, use the recognized channel—the Manufacturers Record.

### FOR SALE

### Complete Contractors' Equipment

For erection of steel work, such as bridges, buildings, etc.; everything, including hoisting engines, riveting outfits, Thor and Cleveland hammers, cables, blocks, line bars, jacks, air compressors, stiff-leg derricks, jenny-winks, one mule straver. All equipment in A-1 shape. We will sell all or part.

MACKLE-CRAWFORD CONSTRUCTION CO.  
221 Grant Bldg., Atlanta, Ga.

### Logging Equipment

### FOR SALE

Two 25-ton locomotives, "Forney type," standard gauge. One double-cylinder two-drum "Flory" skidder, about 80 H. P. One double-cylinder Orr & Sembrower loading machine, size 8½"x10." One double-cylinder overhead skidder, about 70 H. P. One "Parker" boom loader, about 35 H. P. One "Lidgerwood" single-cylinder pile driving machine. Eight good logging cars, standard gauge. Also have wire rope, blocks, shackles, wire-rope clips, chains, tongs, etc., necessary for the above equipment.

One "Stearns" engine, 150 H. P., with drive pulley 21" face, 10" diameter, 6 15-16" bore. One "Stearns" boiler, 60"x16", 100 H. P. One Lombard boiler, 60"x14", 100 H. P. One Clark 7"x9" steam nigger. One Mits & Merrill No. 73 hog. One acetylene-gas generator, 25 lights. A lot of solid cast pulleys, block-bearing boxes, exhaust pipe, lumber trucks, 12-pound rail, etc. All the above machinery is in good condition and is located at Robins Neck, Darlington county, South Carolina, on the A. C. L. R. R., for inspection. We are in position to make quick shipment. Write us. Address

MANN & PARKER

ANDORO, DARLINGTON CO., S. C.

### SPECIAL

### FOR SALE

One standard-gauge 42-ton Shay, nearly new, in Alabama.

One standard-gauge 30-ton Shay, excellent condition, in Arkansas.

Also fifty other standard and 3-foot gauge Locomotives at our shops in Birmingham.

Write us for PRICES and TERMS.

BIRMINGHAM RAIL & LOCOMOTIVE CO.  
BIRMINGHAM, ALA.

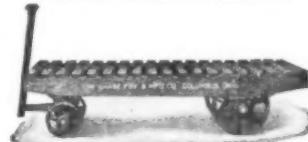
### ONE REAVES TRACTION ENGINE FOR SALE CHEAP

Twenty-five horse-power, cross-compound, in first-class condition. Reason for selling, soil is entirely too soft in this section of the country; absolutely no fault of the engine.

SAVANNAH LUMBER COMPANY,  
52d and Montgomery Sts., Savannah, Ga.

### Roller Bearing CARS AND TRUCKS

OF ALL KINDS, FOR ALL PURPOSES



Style 44

SWITCHES, TURNABLES

Complete Industrial Railway Equipment

Write for Catalogue and Prices.

The Chase Foundry & Mfg. Co.  
COLUMBUS, OHIO



## Light Revolving Shovels

For many requirements such as road and street construction, cellar and basement excavation, and brickyards, the small revolving steam shovel is practically indispensable. For this class of work, a pronounced favorite is

### The Marion Model 28

Operated entirely by one man. Swinging in complete circles in both directions, it will dig and deliver material at any point within its radius. It will work safely and successfully on a 15 to 20% grade, and handle at a splendid profit excavations having cuts as shallow as 10 in. in depth. Its dipper capacity is ½ cubic yards.

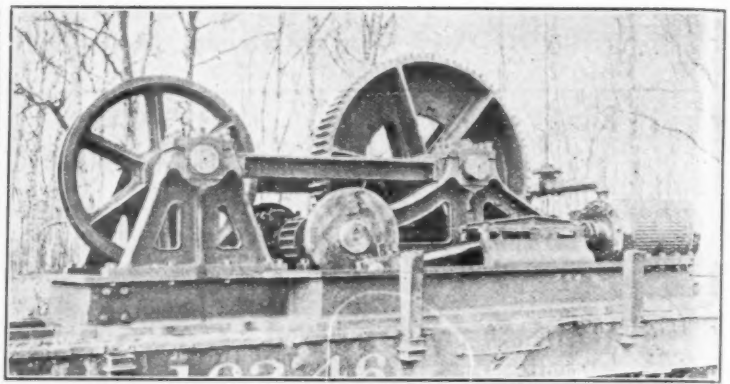
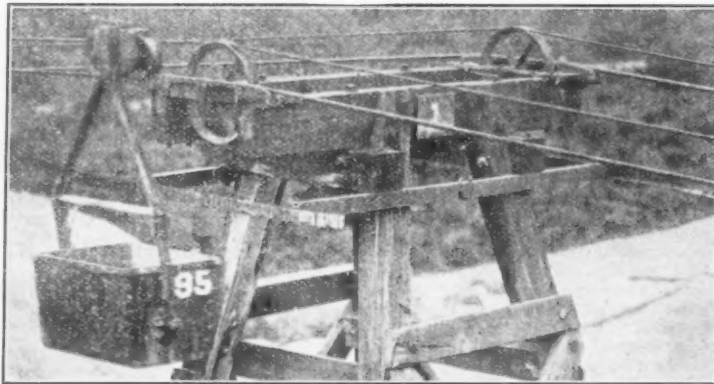
Write Dept. H for Circular 28, giving more information.

Scraper-Bucket Excavators — Dredges

The Marion Steam Shovel Co., Marion, O.

New York: 50 Church Street

Chicago: 1442 Monadnock Building



## AERIAL TRAMWAY

(Built by John A. Roebling's Sons Co.)

Double Rope Tramway.

Length of line 11,800 feet.  
Hourly capacity 60 tons.

Power at loading terminal. One Flory double cylinder 14x18" engine (photo above).

140 Carriages complete with Roebling's patent steel grips and tip buckets of 10 cubic feet capacity (photo above).

At present operating with 36 intermediate towers (timber).

Loading terminal 37' long, discharging terminal 100' long, two intermediate terminals each 100' long (iron work).

Tramway was constructed by the Roebling Company in June, 1910, and has been handling cement and sand. Is in perfect order. Is offered for sale only because contract work has been completed. Can be seen in operation at High Falls, Ulster County, N. Y., and released when required.

Main loaded cables 1½ to 1¾" (32 wire cast steel tramway strand).

Empty main cable ¾ and 1" (19 wire cast steel tramway strand).

Traction rope 24000' ¾" (6x19 cast steel wire rope).

Complete with switch rails (at terminals), counterweight ropes, cable fittings, sockets, etc., anchor irons and all necessary bolts and washers for towers and terminals.

Complete set of drawings for erection.

**E. C. SHERWOOD**

46 CHURCH ST.

NEW YORK CITY

## THE MAY & TURNER CO., ATLANTA, GA.

MANUFACTURERS OF THE

### BURROUGHS RAILWAY NUT LOCKS

Dealers Relaying Steel Rails and Railway Supplies

## Bonzano Rail Joints.

Make Better Track. Reduce Expense.  
Millions In Use.

**The Q & C Co.**

New York.

Chicago.

## R. C. HOFFMAN & COMPANY

(INCORPORATED)

Continental Building - - BALTIMORE, MD.

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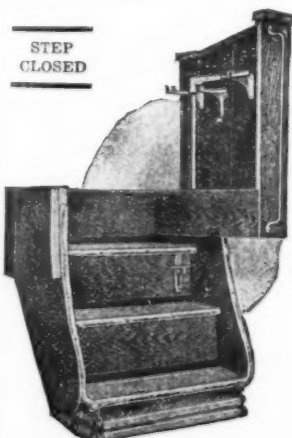
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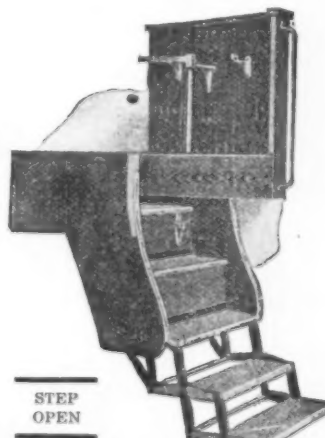
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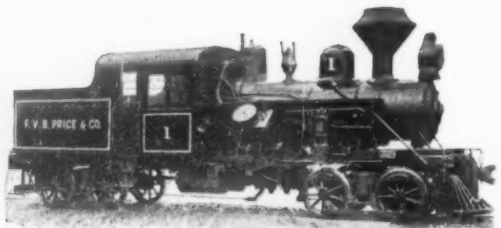
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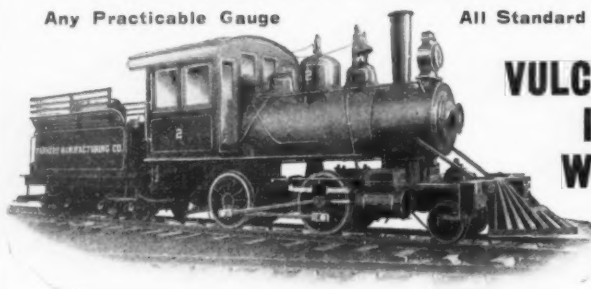
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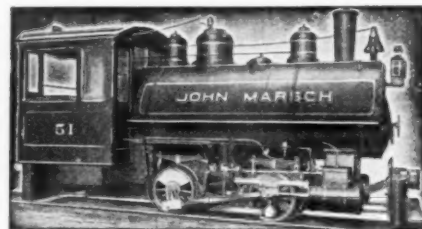
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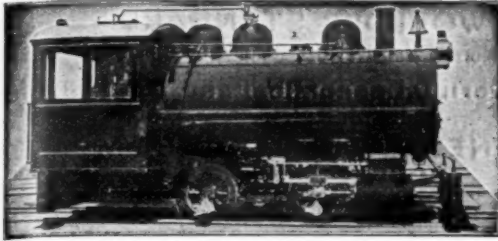
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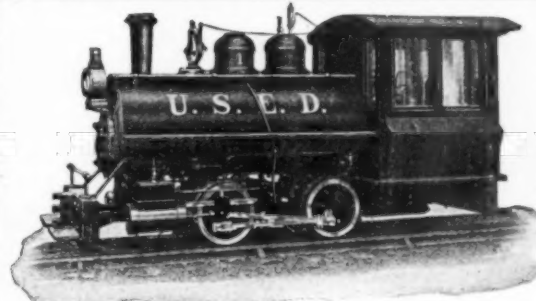
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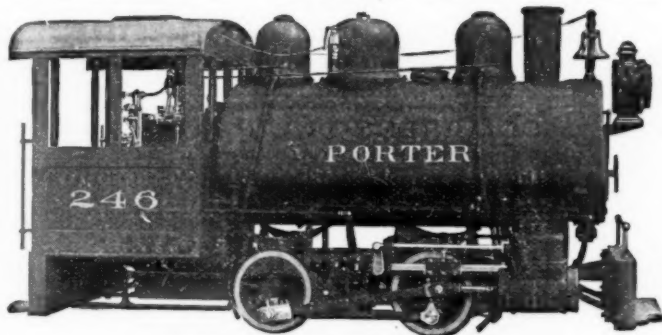
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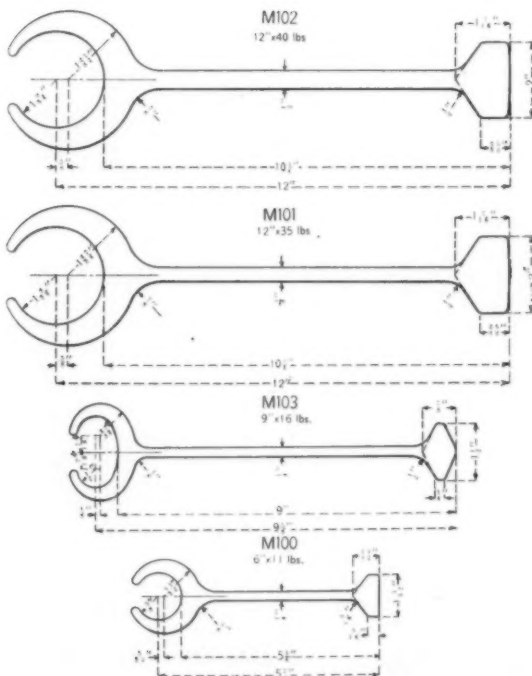
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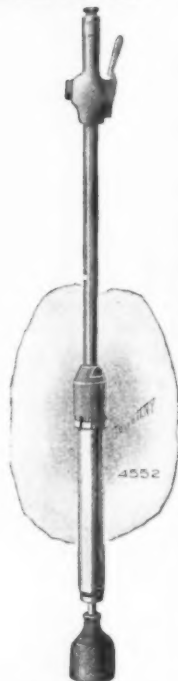
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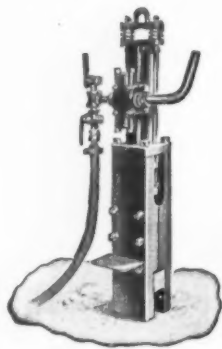
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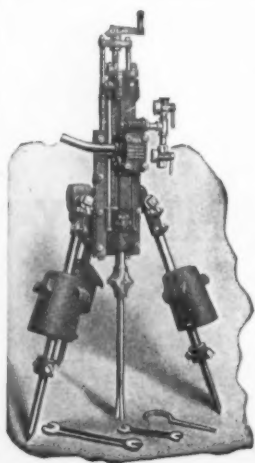
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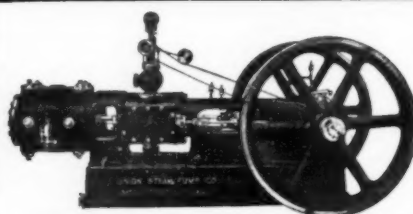
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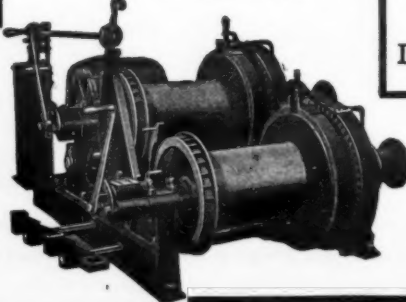
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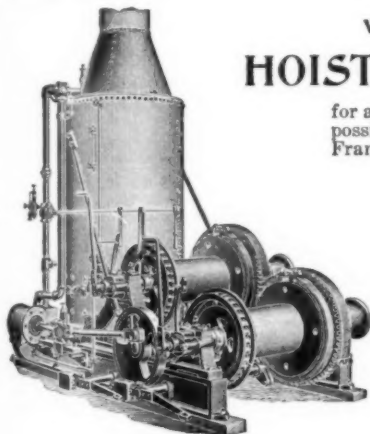


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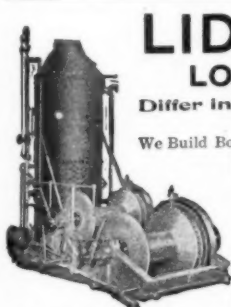
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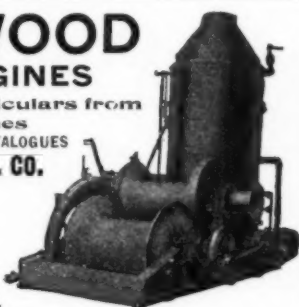
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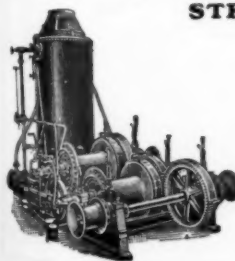
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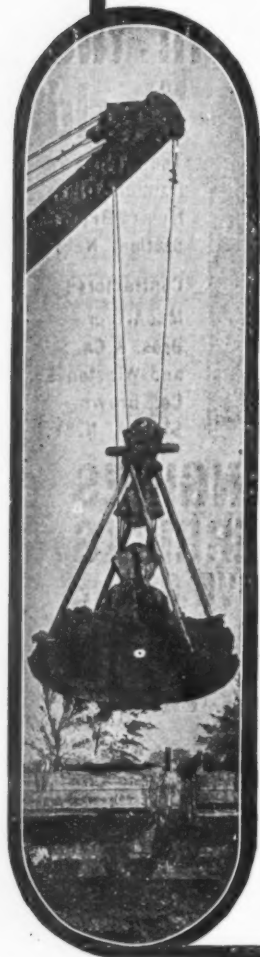
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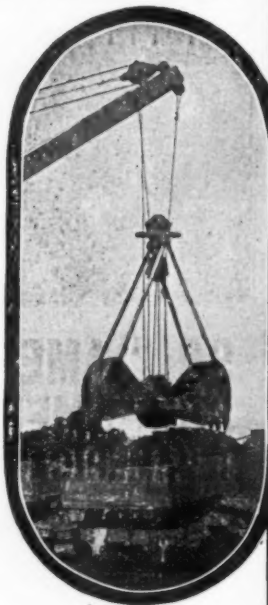
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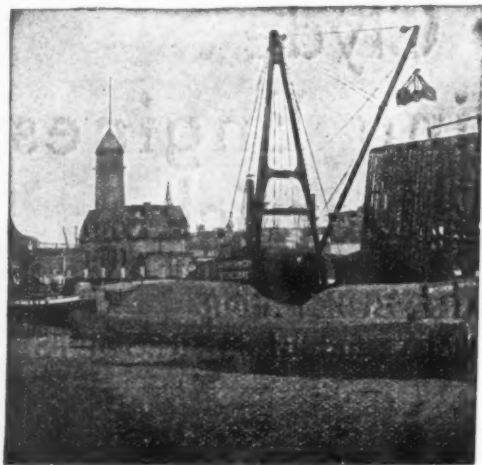


Illustration No. A 745

For instance, in illustration 52 (shown herewith), an Orange Peel Bucket is loading clay into a wagon by first dumping it into a hopper. The bucket is speedy enough, and by use of the hopper it was not allowed to be idle; its speed was fully utilized and the excavating machine did not have to lose time waiting for wagons.

In the other picture (A 745) a similarly incidental convenience is shown, this time with a Clam Shell Bucket. Here crushed stone was being unloaded from a scow and was dumped into storage bins. The stone had to be raised to great height, and this was done at very low cost by these automatic buckets.

Hayward Buckets save money in every direction.

You should have our Catalog in your files

# HAYWARD BUCKETS

## For Rehandling Are Unequaled

Contractors know that Hayward Buckets are incomparable in point of view of durability and efficiency. They are used in every class of work, and there is not a rehandling or digging problem that a Hayward Bucket has not at some time been used to overcome.

In rehandling work they are especially economical, safe in operation, speedy, and desirable in every sense, and both

### HAYWARD

#### ORANGE PEEL AND CLAM SHELL BUCKETS

have been found unexampled in many unusual classes of work

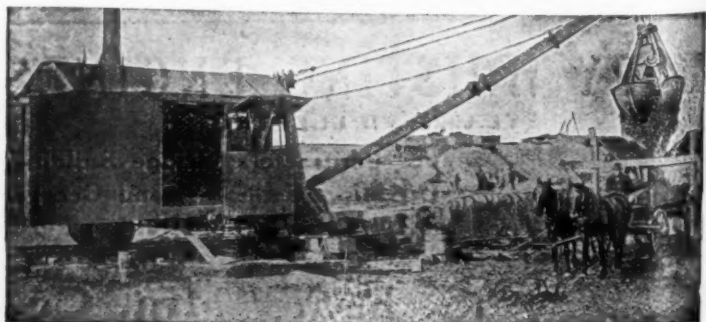
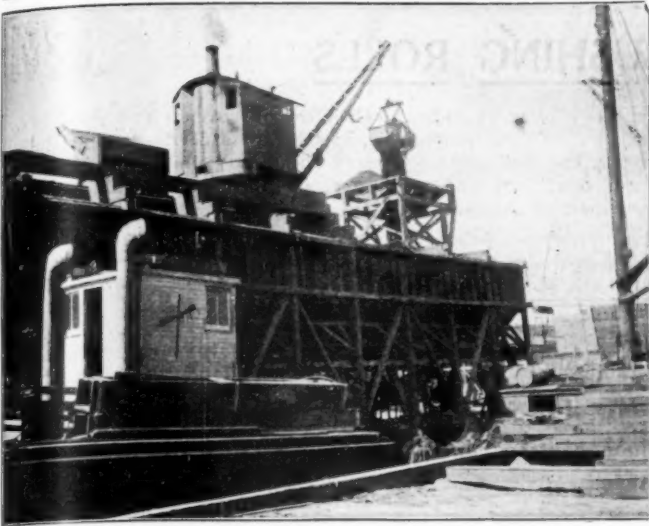


Illustration No. 52

**THE HAYWARD COMPANY**  
50 CHURCH ST. NEW YORK





## PLAIN FACTS about Browning Cranes

Wherever materials are being handled under extraordinary conditions, you will most generally find a BROWNING LOCOMOTIVE CRANE successfully doing the work.

If you have a material handling or transfer proposition confronting you, write for our new 1912 catalogue; it will give you an idea of some of the difficult problems we have already solved.

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## MONIGHAN STEEL DRAG BUCKET EXCAVATORS

With booms from 40 to 100 feet in length

**Monighan Two Line  
Drag Bucket**  
1, 1 1-2, 2 and 2 1-2  
Cu. Yard Capacity



No. 2 Excavator with 70 ft. boom and 2 yard bucket

**Monighan Machine Co., 2016-2030 Carroll Avenue, Chicago**



Ore Bucket,  
Type "A."



Standard Bucket,  
Type "B," Closed.



Standard Bucket,  
Type "C," Closed.



Standard Bucket,  
Type "D," Closed.



Special Dredge and  
Excavating Bucket.



Single Rope Bucket,  
Type "D," Closed.



Single Rope Bucket,  
Type "D," Open.

## BUCKETS FOR EVERY SERVICE

That Dig Every Old Thing—Every Day in the Year

*They are STRANGERS  
to the  
Repair Shop*

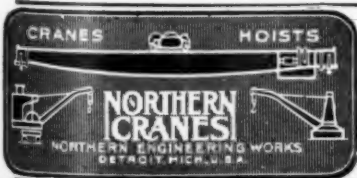
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CLEVELAND, OHIO, U. S. A.

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Will Receive  
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**Complete Plants for Washing and Preparing**  
**HEMATITE ORES AND PHOSPHATE ROCK**

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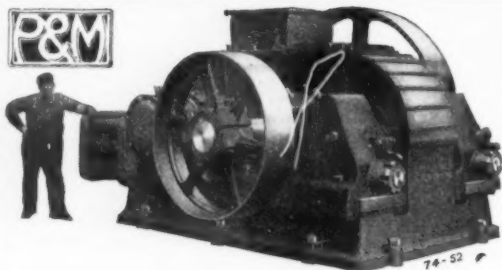


at Boiler Plant of American  
Gas & Electric Co.

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Bucket delivers coal from  
cars or ground storage to  
traveling crusher which re-  
duces it to stoker size, dis-  
charging into bunkers.

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are adapted to a wide range of work ordinarily handled by crushers and grinders. Being of especially massive construction and equipped with exceedingly powerful springs, they can be operated at unusually high speeds, with corresponding increase in capacity. The rolls have extra hard and tough steel shells (not chilled iron), and can be furnished in manganese or chrome steel.

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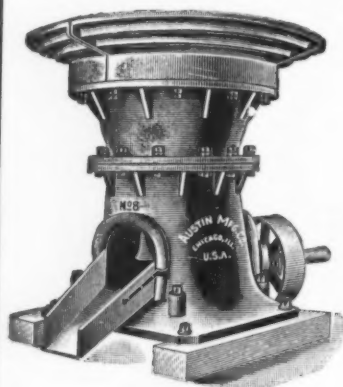
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District Offices: New York, Chicago, Birmingham, El Paso, San Francisco

M133.2

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The World's Leading Rock and Ore Breaker.

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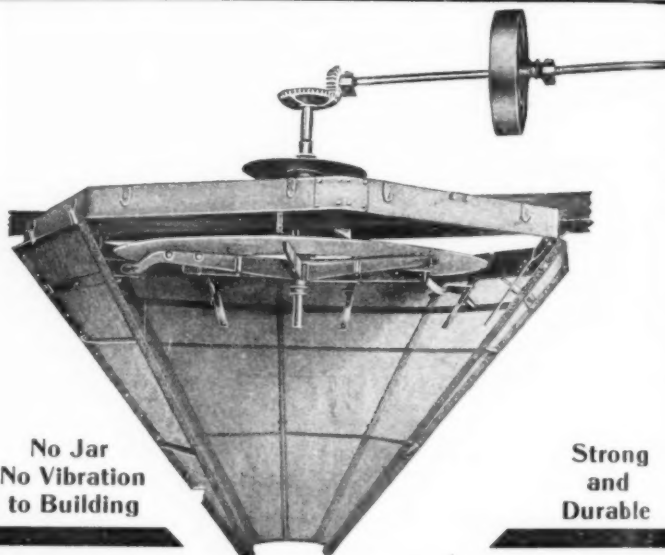
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No. 1 Screen.	No. 2 Screen.
Ground Phos. Rock.....	7 to 8 tons per hour.
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### WILLIAMS PATENT HAMMER TYPE

Shale Crushers. Shale and Clay Grinders  
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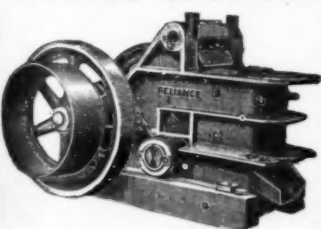
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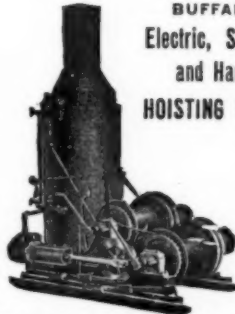
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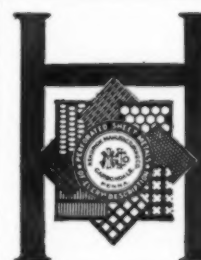
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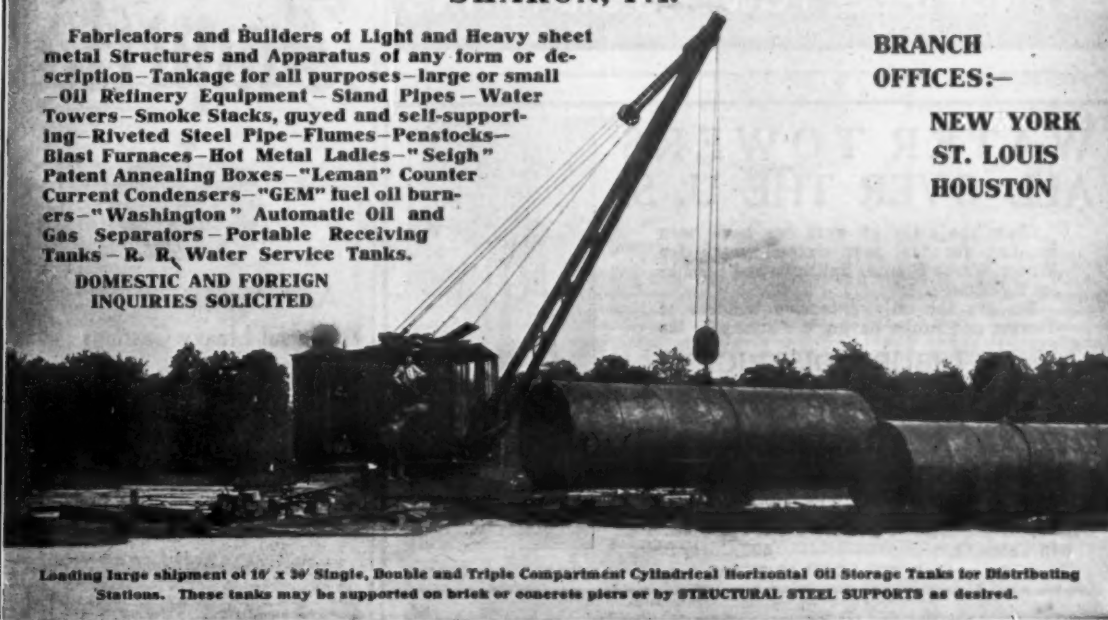
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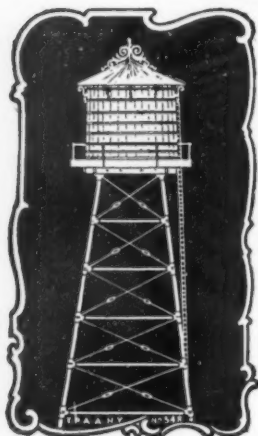
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If you erect this outfit at your plant, you are assured of freedom from accident and repairs for all time. If you will but investigate the many plants in your vicinity having this outfit, you will take chances with no other. Ask for illustrated catalogue and book of photo views.

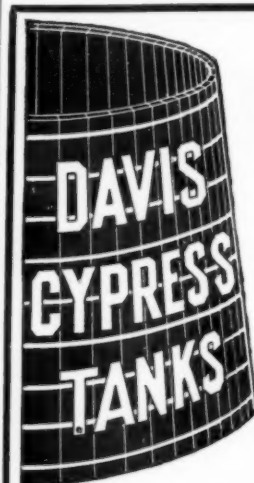
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2-36" Culverts under 25' fill  
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**WHY?** Light, easily handled. Made in solid, continuous lengths as may be specified. No assembling of short sections on the ground.

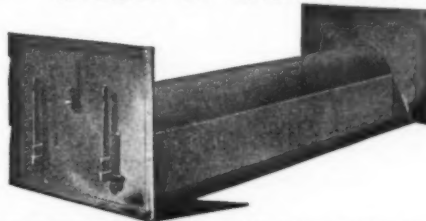
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AMERICAN INGOT IRON is the only iron with a guaranteed analysis. It is 99.94% pure; the purest iron manufactured commercially. This is why it lasts and resists detrimental influences. This culvert gives perfect service under the lightest and heaviest fills.

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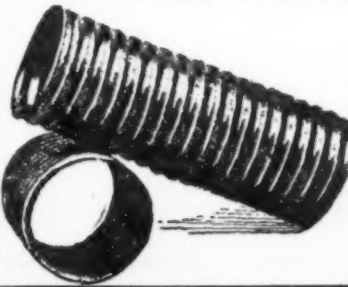


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Will do it**

They are the lightest, strongest, easiest handled forms on the market. Not a single failure anywhere. Write for illustrated booklet and full particulars.

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For better roads and lower maintenance cost. Serviceable, durable, non-corrosive and simple to install.

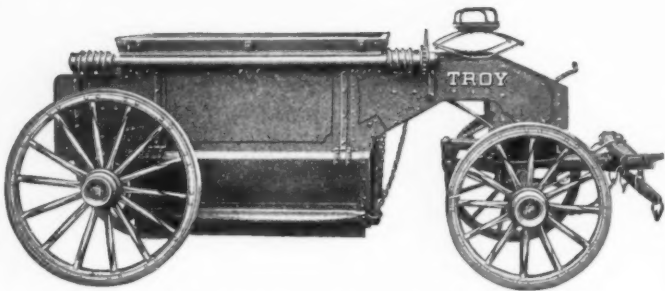
Manufacturers also of Corrugated Metal CISTERNs and Storage TANKS.

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### TROY SPECIAL

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And the Specials will chuckle every day you own them—a chuckle that shows they're running light and easy. Don't you want the price?

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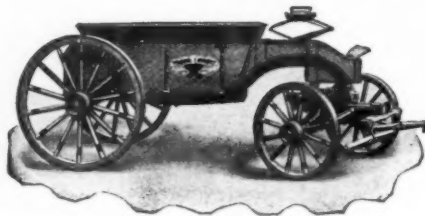
106 East Race Street  
TROY, OHIO

## The Sales of This Season

Will make another record breaking year for us. Last year's sales were large, but this year's

"The Biggest Ever"

It is all because the



### Eagle Dump Wagon

and Dump Box suit the users.

Ask for our 1912 Catalogue. It's now ready.

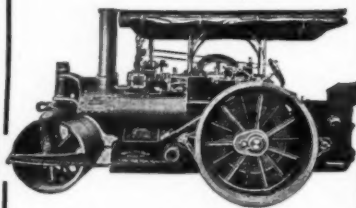
### THE EAGLE WAGON WORKS

Auburn, N. Y.

P. S.—It looks now as if the Banner Sales for any city from January to January would be taken by a Southern city. The Eagles suit everywhere.

### Buffalo Pitts Rollers

BUILT FOR SERVICE



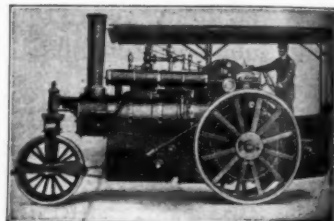
Made in all types and sizes for all purposes  
4 to 20 tons

### BUFFALO STEAM ROLLER CO.

BUFFALO, N. Y.

### THE KELLY-SPRINGFIELD ROAD ROLLER CO.

SPRINGFIELD OHIO



### ROAD ROLLERS

ALL TYPES  
ALL SIZES

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Specially Prepared for  
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**Asphalt Road Oil** In four grades, containing from 30% to 60% asphaltum. For use on well-made roads as they are. One application usually lasts a season.

**Emulsifying Road Oil** A lighter asphaltic oil, prepared to mix readily with water. Particularly serviceable as a dust preventive for parks, private estates, boulevards, etc. Requires frequent application where traffic is heavy.

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The information this book contains will be found invaluable to Supervisors, Road Commissioners, State and Municipal authorities, and to owners of private estates.



**STANDARD OIL COMPANY,**  
(Incorporated)  
ROAD OIL DEPARTMENT

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For Modern Bituminous Pavements

Capacity—1200 to 1500 square yards of 2-inch surface per day

Town and city officials, paving companies, road contractors, engineers and all others interested in building and maintaining the best and most economical streets and roadways will profit by knowing the actual work of this machinery, and we will be glad to furnish all the necessary information.

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Guaranteed to stand 18% standard test

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ENDORSED BY EXPERTS

Develop phenomenal strength and resistance to wear in official government tests.

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**THE HARRIS GRANITE QUARRIES CO., - Salisbury, N. C.**  
Standard Blocks—Flange Blocks



## American Valve & Meter Co

### CINCINNATI, OHIO.

Manufacturers of

RAILROAD STAND PIPES.  
RAILROAD TANK VALVES AND TANK  
FIXTURES.  
FLOAT OR AUTOMATIC INLET VALVE  
FOR TANKS.  
SWITCH STANDS FOR ALL PURPOSES.  
WATER METERS.

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## DART UNIONS

Have Bronze to Bronze at the  
Joint—No Corrosion



This construction is embodied in our  
Flange Elbow, Tee, Male and Female and  
Air Pump Unions. Ask for circular and  
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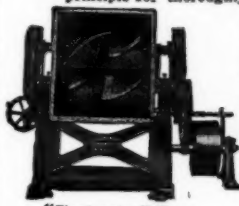
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PROVIDENCE, R. I.

THE FAIRBANKS CO., Agents

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## Lynn-Superior Double Mixers

Best designed and most efficient mixing  
principle for thoroughly mixing



"Cincinnati" Type.

Built with or without steam jacket for  
heated mixtures.

Write us for any special Mixing or  
Blending machinery required.

THE LYNN-SUPERIOR CO., Cincinnati, O.  
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Is not only better in  
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Made in  
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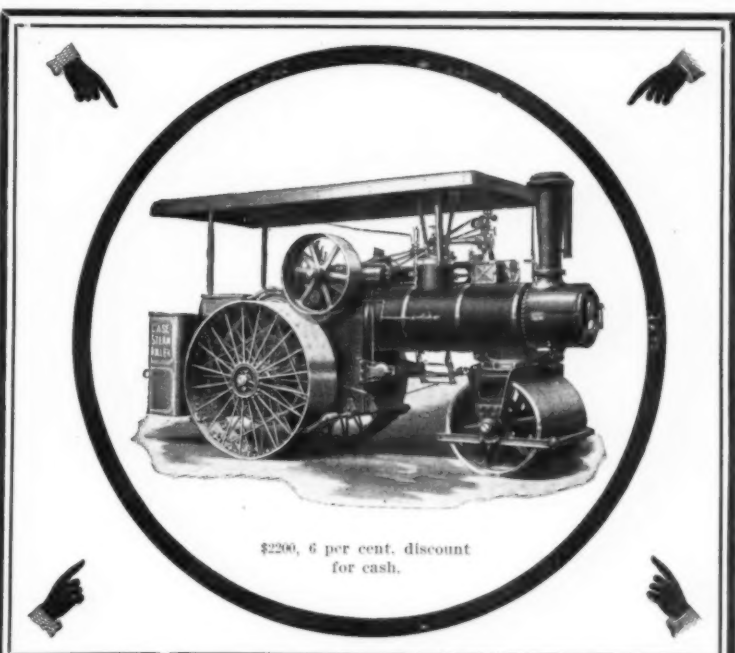
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December 21st, 1911.

A Merry Christmas to Everybody

C. F. BLOUNT

Southern Sales Agent  
522 Grant Building ATLANTA, GA.



\$2200, 6 per cent. discount  
for cash.

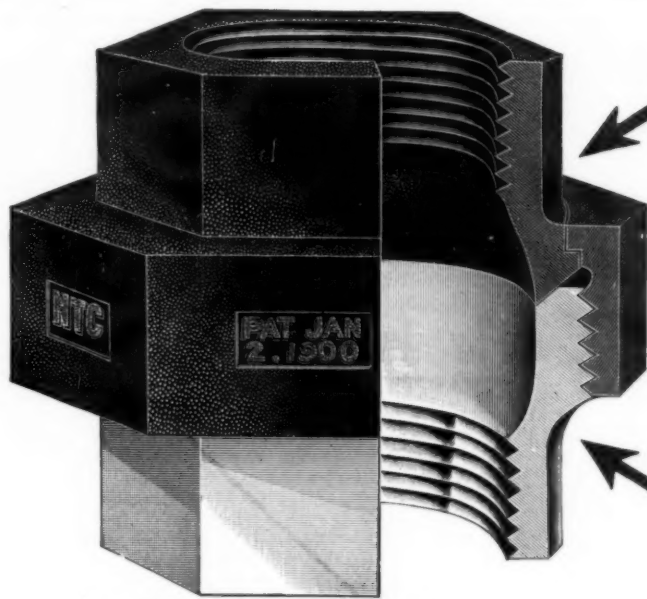
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It represents the highest achievement in road rollers. It is years  
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tractor's profit and do better work. We would like to explain to you  
the advantages of the Case. A postal will bring our representative.

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J. I. Case Threshing Machine Co.  
(Incorporated)  
Racine, Wis.

65 Branches and 10,000 Agents at our Customers' Service.



"The Union With No Inserted Parts."

"KEWANEE"  
UNIONS  
Are  
Air Tight

A union may look all right to the eye, but in many instances appearances are deceitful.

There are few places where any kind of a union "will do," and where the service is exacting, a union must be TIGHT—In other words a "tested Union."

For instance: Recently a large Foundry in the Middle West purchased an indicating Air Flow Meter, and one of our Representatives after an interview with the Purchasing Agent of this concern reported:

"This meter was equipped with  $\frac{1}{4}$ " connections in which were included two ordinary unions and a plug cock not marked. For days they experimented with the meter without satisfactory results. The trouble seemed to be in getting the fittings tight. After many attempts the engineer finally gave up trying to get these fittings tight, and replaced them with "KEWANEE" UNIONS and Regrinding Valves. After which no further trouble was experienced."

Use "Kewanee" Unions—the AIR TESTED KIND.

The reason why "Kewanee" Unions are satisfactory is:

(a) Brass to iron thread connection—No corrosion.

(b) Brass to iron ball joint seat—No gasket.

(d) Solid, three piece construction—No inserted parts.

(c) 125 pounds compressed air test under water—No defective fittings.

(e) Easily disconnected—No force required.

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## Special

Order a few "Kewanee" Unions for trial. If your  
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and Specialties are carried in stock in practically every  
jobbing center in the country.

DON'T ACCEPT A SUBSTITUTE—Insist on the "KEWANEE"

Our new booklet, "The Whole Kewanee Family," tells all about  
"Kewanee" Unions. Get a copy to keep on file. It will help  
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Salt Glazed Vitrified Sewer Pipe  
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Ready to Make Deliveries

*Inquiries Solicited*

# Cast Iron PIPE

in all regular sizes, 3 inch to 84 inch

FOR		
WATER	SEWERAGE	CULVERTS
GAS	DRAINS	Etc.

FLANGED PIPE	FLEXIBLE JOINT PIPE
SPECIAL CASTINGS	LARGE CYLINDERS
HEAVY CASTINGS	

**United States Cast Iron Pipe & Foundry Co.**

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## It Carries More Water For Its Diameter Than Any Iron Pipe

WYCKOFF WOOD PIPE is not impaired by the effects of electrolysis, acid fumes or corrosion. It is light, strong and very durable. Lengths, 6 ft. to 12 ft. long. Size for size, it carries 14% more water than iron pipe. Costs less for transportation, because it is lighter and easier to handle. *May we send Catalog giving fullest details.*

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Established 1855

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FOUNDERS  
AND  
MACHINISTS

## CAST IRON PIPE FOR WATER AND GAS WORKS

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Trade **"LEADITE"** Mark

Registered U. S. Pat. Office

## For Jointing Water Mains

- DURABILITY.** Leadite joints increase in strength with age.
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- TRANSPORTATION.** Considerable freight charges are saved because Leadite is lighter than lead.
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- DELIVERY.** We can make prompt shipments.
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ESTIMATES PROMPTLY FURNISHED

**THE MOST PRACTICAL ALL-STEEL PIPE**  
**TAYLOR'S SPIRAL RIVETED PIPE**  
for Irrigation, Hydraulic Mining  
Dredging, Steam Exhaust, Water  
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constructed. Fitted with forged  
steel connections. Hundreds of  
miles in use. Sizes 3" to 42"  
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Ask for 80-page Catalogue No. 5-H  
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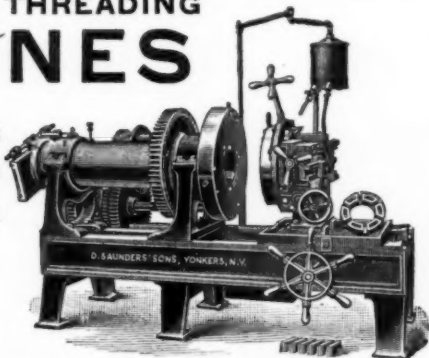
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**SEWER PIPE**  
MADE OF FIRE CLAY  
Send your inquiries to the  
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Manufacturers of PHIPPS' HYDRAULIC PIPE

## PIPE CUTTING AND THREADING MACHINES

All Sizes for Pipe Mills  
Gas and Steam Fitters

This cut illustrates No. 5 and  
No. 6 Machines.  
No. 5 has a range of 1 1/4 to 6".  
No. 6 has a range of 2 1/2 to 8".  
Send for literature.



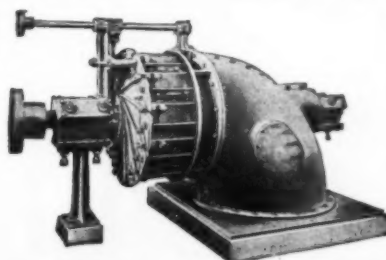
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Take off your Hat to the  
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Well Pumps, Power Pumps,  
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With Glass Valve Seat  
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on the Globe  
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**The Pump that PUMPS** **HAY TOOLS** **BARNDORF HANGERS HAY RACK CLAMPS**

## SAMSON WATER TURBINE

We build these turbines in all SIZES and STYLES, on  
UPRIGHT or HORIZONTAL shafts, BELTED or DIRECT  
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for direct connecting to GENERATORS, AIR COMPRESS-  
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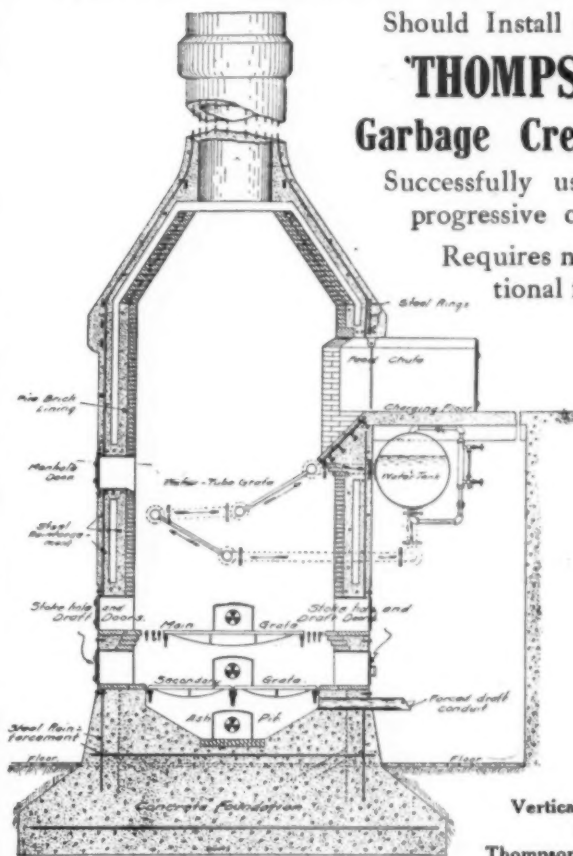


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Should Install a  
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Garbage Crematory

Successfully used by  
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Requires no addi-  
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Vertical Section  
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**SPECIALTY ENGINEERING CO., HOUSTON, TEX.**

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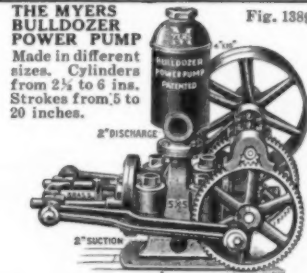
None Genuine Without Trade Mark



All parts inter-changeable  
---Most economical and re-  
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Send for Latest Price  
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**Has No Valves---  
Cannot wear out---  
Pumps Sandy or  
dirty water equal-  
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Perfectly  
Simple**

**BLAKESLEE MANUFACTURING CO.**  
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WORKING HEADS, PUMPING  
JACKS, CYLINDERS, ETC.**

## Don't tear up streets hunting pipe



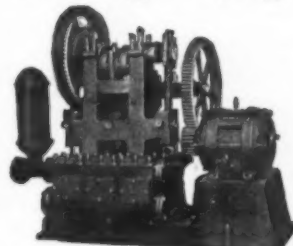
It's expensive and  
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**The D. B. M. Wireless  
Pipe Locator**

will find the exact lo-  
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under ground, no mat-  
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buried, nor what  
they're covered with.

Write for 14 days' free trial offer.

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Southern Sales Agent—C. F. Blount, 522 Grant Bldg.,  
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## Deming Pumps



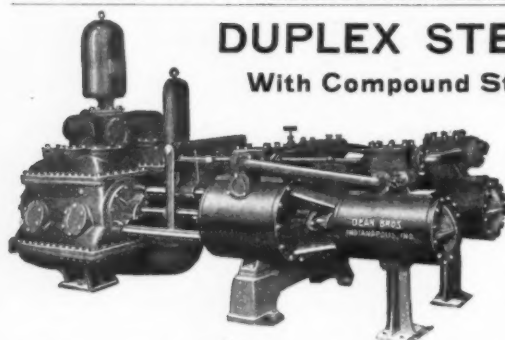
Deming Triplex Power Pump direct  
connected to electric motor.

Ask for our general Cata-  
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write us your specifications.

**The Deming Company**  
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HAND AND POWER PUMPS

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## DUPLEX STEAM PUMP

With Compound Steam Cylinders

This pump delivers the full capacity of each piston at every stroke. The steam consumption is economical. The valve area is large.

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**INDIANAPOLIS.**

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Pumps for All Services

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## Tell Us Your Pumping Requirements

and we can give you exactly the Pump that will best meet them, from the line of



**Goulds Pumps**  
FOR EVERY SERVICE

This line includes—

Triplex, Centrifugal and Rotary Power Pumps, Working Heads, Air Compressors.

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Branches in all Large Cities

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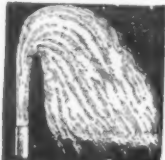
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Hydraulic Engineers.

MANUFACTURERS OF

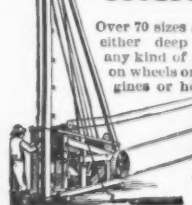
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Established 1885  
Have a WELL at your plant and protect employees' health. We'll drill it. Write HUGHES SPECIALTY WELL DRILLING CO.  
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## Well Drilling Machines



Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on wheels or on gins or horse powers. Strong, simple, durable. Any mechanic can operate them. Send for catalog.

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HIGH-GRADE

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Thoroughly Vitrified. None Better Vitrified Wall Copings and other Clay Products. Annual Capacity 1900 cars.

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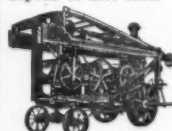
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Highest efficiency  
Both CYLINDER and REGISTER gate  
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## KEYSTONE CABLE DRILLS

For Artesian Water Wells; Oil, Gas and Mineral Test Wells; Blast Holes in Heavy Excavation. A complete line of Traction and Portable Machines, all depths to 2500 feet.



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**Keystone Steam Well**

Machine Co.

BEAVER FALLS, PA.

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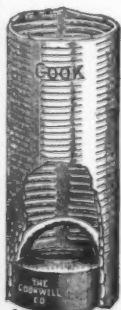
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For Cities, Towns, Villages, Railroads, Ice Plants, Breweries and Manufactories.

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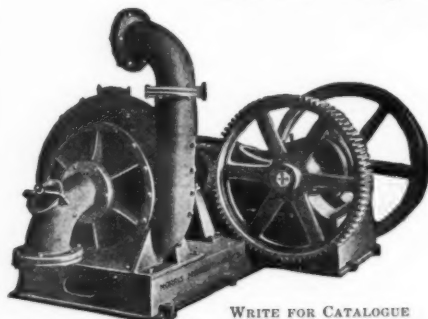
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BALDWINVILLE, N. Y.

## Centrifugal Pumping Machinery and Steam Engines



Specially Designed  
PUMPS

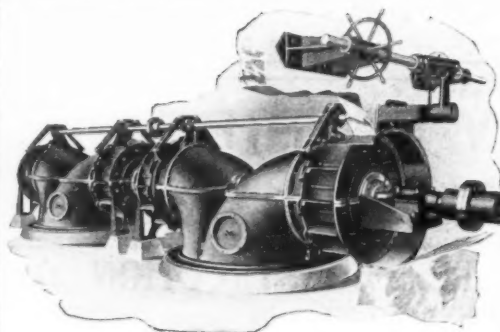
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And Appurtenances Produce Better Results than any other water-power equipment on the market.

Many plants owe their constant operation and low maintenance cost to the substantial construction of our machinery.

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PIPE, FITTINGS, VALVES, STEAM AND WATER SUPPLIES  
Pipe from 1/4 inch to 12 inches cut to measure. Orders executed promptly at lowest prices.

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General Agents for Virginia and N. Carolina for  
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SUPPLIES OF ALL KINDS

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ALL SIZES. BELT DRIVEN AND DIRECT CONNECTED

For Irrigation, Tanneries, Mine Drainage, Phosphate Mining,  
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## TRUMP TURBINES

Built in All Sizes  
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Water Power

Machinery to Suit  
Your Requirements

THE TRUMP COMPANY - - Springfield, Ohio



## The Best and Cheapest Pumping

IS DONE BY THE

Open Impeller Type

## Holmes Centrifugal Pump

It is a departure in pumps and the result of years of tests and experiments. Just the thing for pumping against high heads, or pumping gritty or sandy liquids; and the efficiency is not only high, *but remains high*. It saves wear and power where the enclosed impeller type fails. It's as low in price as other first-class pumps of same capacity and head. Made for horizontal or vertical shaft, single or multi-stage.



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**Emerson Steam Pump Co.**

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### OUR STANDARD BELT DRIVEN SAND- GRAVEL- DREDGING PUMP

has hosts of friends, and the reason is because it is so well built, and has such long life.

We are willing to tell you more, and ask for the opportunity.

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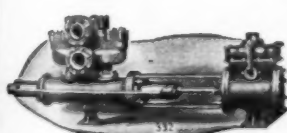
## THE JOHN H. MCGOWAN CO.

BUILDERS OF

SINGLE



DUPLEX



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FOR

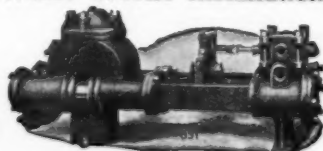


Mills, Mines, Phosphate Plants, Power Stations and Water Works Installations

BOOKLETS

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SINGLE PUMPS



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313

DUPLIX PUMPS

CINCINNATI, O.

The Slogan of the Cameron—"Character: The Grandest Thing."

## Cameron Pumps

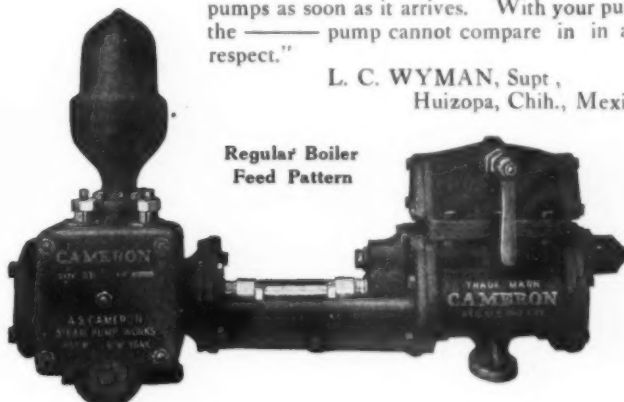
Reduce Pumping Costs

They are the simplest, with the fewest working parts, and require the least attention and care. Designed and built in the light of over 50 years' experience, they meet every pumping service, and successfully undergo the severe strains that convert ordinary pumps into "scrap," as shown in the following instance:

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Regular Boiler  
Feed Pattern



Catalogue No. 21 sent on request to interested pump users.

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Foot of E. 23d St., New York City

12-21-11

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Simple—Flexible—Efficient



No gearing. Belt driven from engine, line shaft, motor or water wheel.

We also build Hamilton Corliss Engines, Air Compressors, etc. Write for Bulletin G.

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**QUALITY—EFFICIENCY**  
 LOW SPEED—LOW POWER  
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York Safe & Lock Co.  
 MANUFACTURERS OF  
**Safes and**  
**Vaults**

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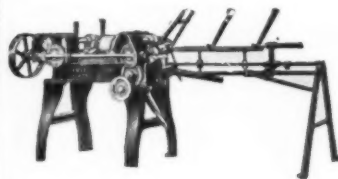
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**SOULE STEAM FEEDS**

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**SOULE STEAM FEED WORKS**

**MERIDIAN, MISS.**

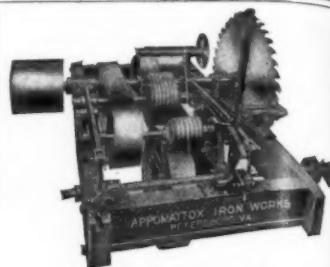
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**Automatic Broom Handle Lathe**

More and Better Handles per day and less waste, is what pays dividends.

MANUFACTURED BY  
**LEWIS T. KLINE,**  
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**VARIABLE FRICTION FEED**  
**SAW MILL**

Thoroughly Adjustable in Every Way.  
 Made in two sizes.  
 Capacity 12,000 to 20,000 feet daily.  
 Can fit our feeds for any make mill.  
 Write for Descriptive Circular.

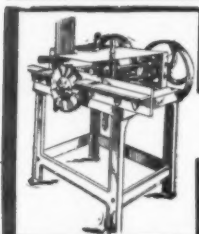
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**Slow Speed, Low Power Blower Systems**

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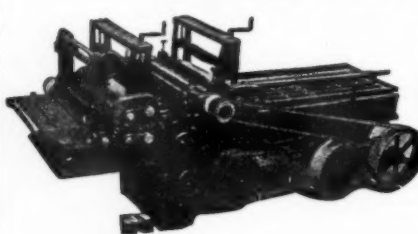
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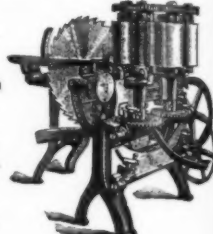
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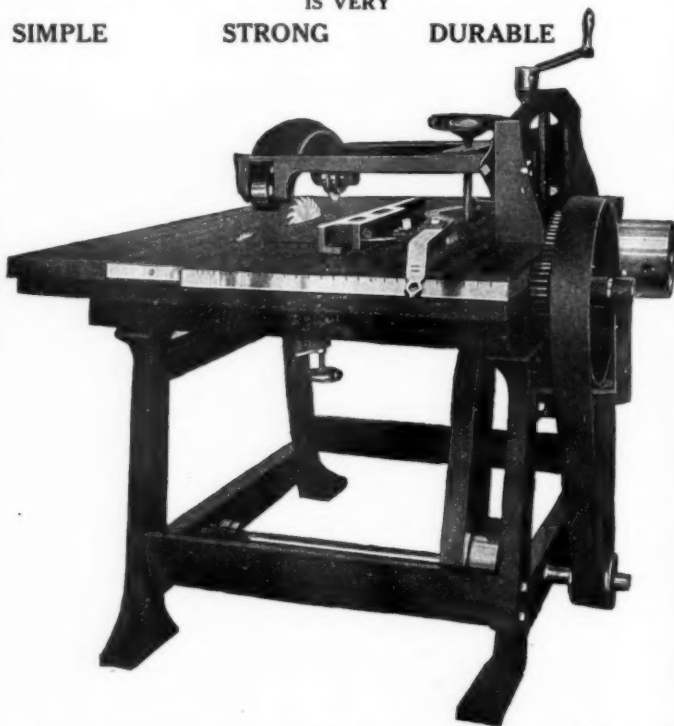
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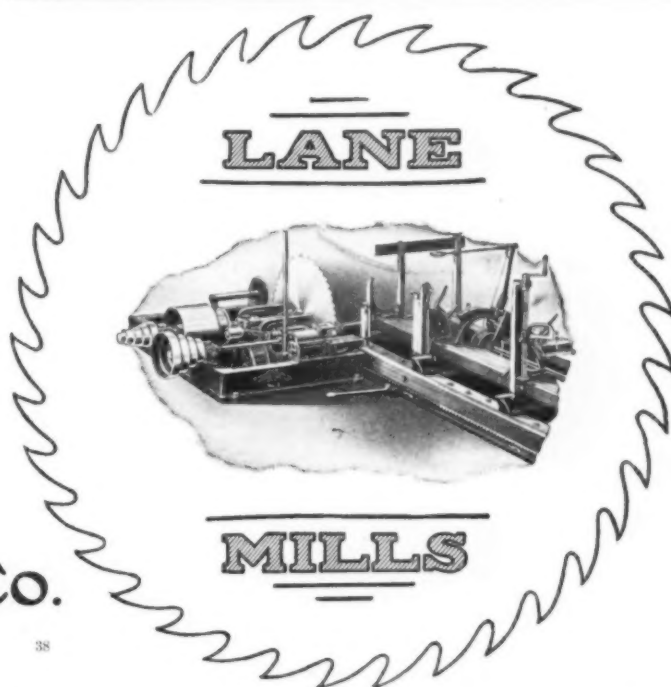
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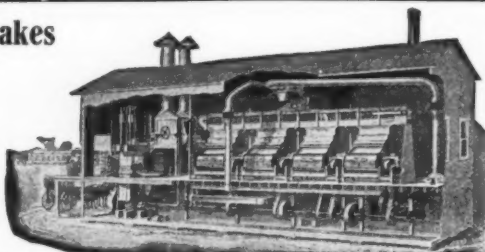
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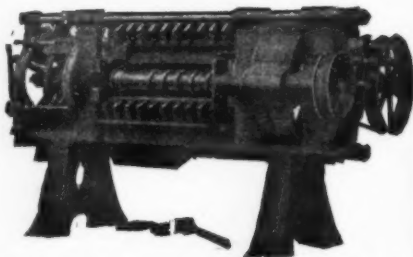
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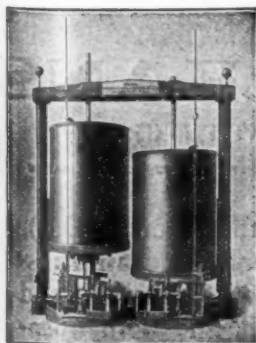
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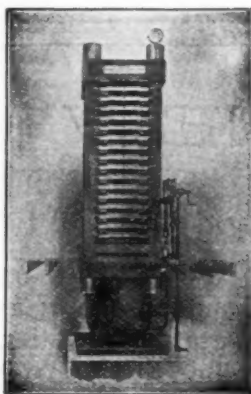
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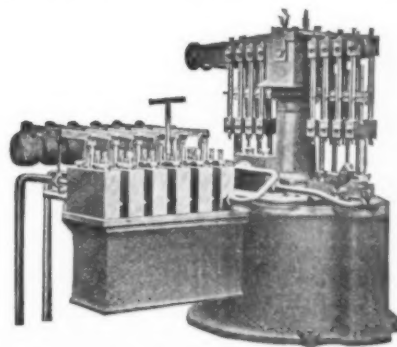
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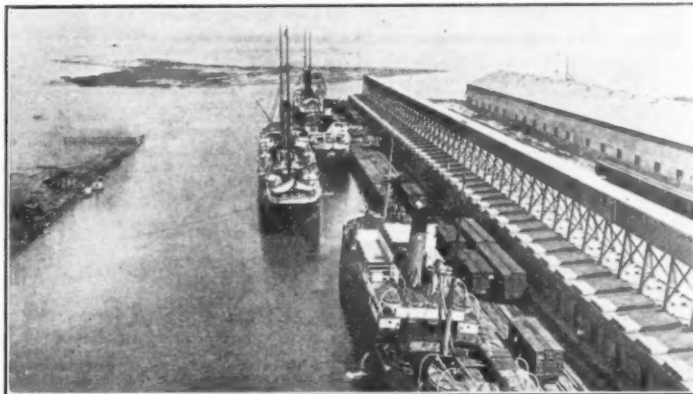
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Diamond Rubber Co., Akron, O.  
Gandy Belting Co., Baltimore, Md.  
Ladew, Estate Edward, Glen Cove, N. Y.  
N. J. Car Spring & Rubber Co., Jersey City, N. J.  
Rosendale-Hedaway R. & H. Co., Newark, N. J.  
Ward-Beebe Co., Washington, D. C.  
Williams & Sons, I. B., Dover, N. H.

**Belted. (Chain.)**

Bartlett & Snow Co., C. O., Cleveland, O.  
Caldwell & Sons Co., H. W., Chicago, Ill.  
Jeffrey Mfg. Co., Columbus, O.  
Link-Belt Co., Nictown (Philadelphia), Pa.  
Morse Chain Co., Itasca, N. Y.

**Belt Conveyors.**

Jeffrey Mfg. Co., Columbus, O.  
Robins Conveying Belt Co., New York, N. Y.

**Belt Dressing.**

Diamond Rubber Co., Akron, O.  
Gandy Belting Co., Baltimore, Md.  
Ladew, Estate Edward, Glen Cove, N. Y.

**Belt Fasteners.**

Crescent Belt Fastener Co., New York, N. Y.

**Belt Lacing. [See Belting, Leather, Canvas, Rubber, and Supplies.]****Bicarbonate Soda. (Sap Stain Lumber Dip.)**

Church & Dwight Co., New York, N. Y.

**Billets. (Open Hearth.)**

Erie Forge Co., Erie, Pa.

**Blackboards. (Slate.)**

East Bangor Slate Co., The, East Bangor, Pa.  
Hower, J. K., Shilington, Pa.  
Johnson, E. J., New York, N. Y.

**Block Tackle. (For Wire or Manila Rope.)**

Patterson Co., W. W., Pittsburgh, Pa.

**Blowers and Exhaust Fans.**

American Blower Co., Detroit, Mich.  
Buffalo Forge Co., Buffalo, N. Y.  
Clark Co., Geo. F., Windsor Locks, Conn.  
De Laval Steam Turbine Co., Trenton, N. J.  
General Electric Co., Schenectady, N. Y.  
Green Fuel Economizer Co., Mattawan, N. Y.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Savannah Blow Pipe Co., Savannah, Ga.  
Standard Blower & Metal Mfg. Co., Atlanta, Ga.  
Sturtevant Co., B. F., Hyde Park, Mass.

**Blueprint Apparatus.**

Keuffel & Esser, Hoboken, N. J.

**Bolters.**

Abendroth & Root Mfg. Co., Newburgh, N. Y.  
Ames Iron Works, Oswego, N. Y.  
Babcock & Wilcox Co., New York, N. Y.  
Brownell Co., Dayton, O.

Cameron & Barkley Co., Charleston, S. C.  
Casey-Hedges Co., Chattanooga, Tenn.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago House Wrecking Co., Chicago, Ill.  
Cole Mfg. Co., R. D., Newman, Ga.  
Cooper Co., C. G., Mt. Vernon, O.  
Gem City Boiler Co., Dayton, O.  
Gibbs Machinery Co., Columbia, S. C.  
Hartley Boiler Works, Montgomery, Ala.  
Heine Safety Boiler Co., St. Louis, Mo.  
Keeler Co., E., Williamsport, Pa.  
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.  
Lombard Iron Works, Augusta, Ga.  
Mecklenburg Iron Works, Charlotte, N. C.  
Murray Iron Works Co., Burlington, Ia.  
Oil City Boiler Co., Oil City, Pa.  
Petroleum Iron Works Co., Sharon, Pa.  
Phoenix Iron Works Co., Meadville, Pa.  
Price Machinery Co., S. M., Norfolk, Va.  
Schofield & Sons Co., J. S., Macon, Ga.  
Smith-Courtney Co., Richmond, Va.  
Southern Engine & Boiler Works, Jackson, Tenn.  
Union Iron Works Co., Selma, Ala.  
Volk & Mordock, Iron Works, Charleston, S. C.  
Vogt Machine Co., Henry, Louisville, Ky.  
Walsh & Weldner Boiler Co., Chattanooga, Tenn.

**Boiler Setting.**

Harbison-Walker Refractories Co., Pittsburgh, Pa.

**Boiler Tubes. [See Tubes, Boiler.]****Bolts, Nuts, Rivets, Studs and Washers.**

Milton Mfg. Co., Milton, Pa.  
Nietown Plate Washer Co., Philadelphia, Pa.  
Republic Iron & Steel Co., Youngstown, O.

**Bonds. (Surety, etc.)**

Fidelity & Deposit Co., Baltimore, Md.

**Boring. (Cylinder.)**

Strickland Machine Co., Richmond, Va.

**Bottling Outfits.**

Vilner Mfg. Co., Milwaukee, Wis.

**Box Shooks.**

Naylor & Co., S. E., Gulfport, Miss.

**Brass Goods.**

Bailey-Lehly Co., Charleston, S. C.  
Buckeye Iron & Brass Works, Dayton, O.  
Powell Co., Wm., Cincinnati, O.

**Brazings. (Cast Iron.)**

Richmond Machine Works, Inc., Richmond, Va.  
Strickland Machine Co., Richmond, Va.

**Brass Railings and Grilles, etc.**

McKenna Bros. Brass Co., Pittsburgh, Pa.

**Brewers' Machinery.**

Vilner Mfg. Co., Milwaukee, Wis.

**Brick. (Building.)**

Am. Enamelled Brick & Tile Co., New York, N. Y.  
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.  
Carroll Portland Cement Co., Charleston, S. C.  
Flake & Co., Inc., New York, N. Y.  
Hood, B. Millin, Atlanta, Ga.  
Hydraulic Press Brick Co., St. Louis, Mo.  
Glenoe Brick & Tile Co., Millidgeville, Ga.  
Pittsburg-Buffalo Co., Pittsburgh, Pa.  
Sibley-Menge Brick & Coal Co., Birmingham, Ala.

**Brick. (Blast Furnace, Coke Oven.)**

Ashtand Fire Brick Co., Ashland, Ky.  
Hood, B. Millin, Atlanta, Ga.

**Brick. (Enamelled.)**

Amer. Enam. Brick & Tile Co., New York, N. Y.

**Brick. (Fire Clay.)**

Ashtand Fire Brick Co., Ashland, Ky.  
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.

Flake & Co., Inc., New York, N. Y.  
Ferdinand Brick Machinery Co., St. Louis, Mo.  
Kilian Fire Brick Works, Killian, S. C.  
Louisville Fire Brick Works, Highland Park, Ky.  
Pomona Terra-Cotta Co., Pomona, N. C.  
Stevens' Sons Co., H., Macon, Ga.  
Taylor Sons Co., Chas., Cincinnati, O.  
Union Mining Co., Mt. Savage, Md.

**Brick. (Magnesia.)**

Harbison-Walker Refractories Co., Pittsburgh, Pa.

**Brick. (Paving.)**

Carlyle Paving Brick Co., Portsmouth, O.  
Copeland-Ingles Shale Brick Co., Birmingham, Ala.

**Brick. (Silica.)**

Harbison-Walker Refractories Co., Pittsburgh, Pa.

**Brick and Clayworking Machinery and Supplies.**

Carnell, George, Philadelphia, Pa.  
Ferdinand Brick Machinery Co., St. Louis, Mo.  
Freese & Co., E. M., Gallon, O.  
Gibbs Machinery Co., Columbia, S. C.  
Scott-Madden Iron Works, Keokuk, Iowa.  
Steele & Sons, J. C., Statesville, N. C.  
Taplin-Rice-Clerkin Co., Akron, O.

**Brick Fireplaces. [See Fireplaces, Artistic Brick.]****Brick Machinery. (Sand Lime.) [See Sand-Lime Brick Machinery.]****Brickwork. (Artistic.)**

Fiske & Co., Inc., New York, N. Y.

**Bridges. (Concrete.)**

Concrete Steel Engineering Co., New York, N. Y.  
Roanoke Bridge Co., Roanoke, Va.

**Bridges. (Rolling Lift.)**

Scherzer Rolling Lift Bridge Co., Chicago, Ill.

**Bridges.**

American Bridge Co. of New York, New York, N. Y.  
Baltimore Bridge Co., Baltimore, Md.  
Belmont Iron Works, Inc., Philadelphia, Pa.  
Chicago Bridge & Iron Wks., Chicago, Ill.  
Des Moines Bridge & Iron Co., Des Moines, Ia.  
Farris Bridge Co., Pittsburgh, Pa.  
Missouri Val. Bridge & Iron Co., Leavenworth, Kan.  
Ritter-Conley Mfg. Co., Pittsburgh, Pa.  
Roanoke Bridge Co., Roanoke, Va.  
Scherzer Rolling Lift Bridge Co., Chicago, Ill.  
Vincennes Bridge Co., Vincennes, Ind.  
Virginia Bridge & Iron Co., Roanoke, Va.  
York Bridge Co., York, Pa.

**Bridge and Structural Iron Paints.**

Carroll Portland Cement Co., Charleston, S. C.  
Chattanooga Paint Co., Chattanooga, Tenn.  
Detroit Graphite Co., Detroit, Mich.  
Dixon Crucible Co., Joseph, Jersey City, N. J.  
Standard Paint Co., New York, N. Y.

**Brimstone.**

Union Sulphur Co., New York, N. Y.

**Briquetting Machinery. (Coal, Lignite, Ore.)**

Devillers, Robert, Brooklyn, N. Y.

**Buckets. (Excavators.)**

Browning Mfg. Co., Mansfield, O.  
Hayward Co., New York, N. Y.  
Moughan Mch. Co., Chicago, Ill.  
Owen Bucket Co., Cleveland, O.  
Stuebner Iron Works, G. L., Long Island City, New York, N. Y.  
Williams Co., The G. H., Cleveland, O.

**Buckets. (Ore, etc.)**

Brown Hoisting Mch. Co., Cleveland, O.  
Browning Mfg. Co., Mansfield, O.  
Caldwell & Son Co., H. W., Chicago, Ill.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Hayward Co., New York, N. Y.  
Link-Belt Co., Nictown (Philadelphia), Pa.  
Owen Bucket Co., Cleveland, O.  
Smith Co., T. L., Atlanta, Ga.  
Williams Co., The G. H., Cleveland, O.

**Buhr Stones.**

Starr Co., B. F., Baltimore, Md.

**Builders and Contractors.**

Falls City Construction Co., Louisville, Ky.  
Gulf Coast Construction Co., Houston, Tex.

**Building Supplies.**

Armstrong Mfg. Co., Richmond, Va.  
Carroll Portland Cement Co., Charleston, S. C.  
Chicago House Wrecking Co., Chicago, Ill.  
Southern Limestone & Cement Co., Charleston, S. C.  
Southern Building Material Co., Norfolk, Va.

**Burial—Inserted Roofing and Siding. (Flexible Cement.)**

Berningham & Seaman Co., Chicago, Ill.

**Burners. (Oil.) [See Fuel Oil Equipments.]****Bushings. (Oilless for Loose Pulleys.)**

North Amer. Metaline Co., Long Island City, N. Y.

**Cables.**

American Steel & Wire Co., Chicago, Ill.  
Broderick & Bascom Rope Co., St. Louis, Mo.  
Roebing's Sons Co., John A., Trenton, N. J.  
Williamsport Wire Rope Co., Williamsport, Pa.

**Cableways. (Overhead Suspension.)**

Broderick & Bascom Rope Co., St. Louis, Mo.  
Flory Mfg. Co., S. B., Bonzon, Pa.  
Lidgerwood Mfg. Co., New York, N. Y.  
Mead-Morrison Mfg. Co., Cambridgeport, Mass.  
Roebing's Sons Co., John A., Trenton, N. J.

**Can and Box Making Machinery. (Tin.)**

Bliss Co., E. W., Brooklyn, N. Y.

**Cans.**

New Orleans Rfg. & Metal Wks., New Orleans, La.  
Southern Can Co., Baltimore, Md.

**Canning Machinery and Supplies.**

Canners & Packers Supply Co., Baltimore, Md.  
Robins & Co., A. K., Baltimore, Md.  
Sinclair-Scott Co., Baltimore, Md.  
Sprague-Canning Machinery Co., Chicago, Ill.

**Carborundum Paper and Cloth.**

Carborundum Co., Niagara Falls, N. Y.

**Card Clothing.**

American Supply Co., Providence, R. I.

**Cars. (Dump, Industrial Logging and Mine.)**

Austin Mfg. Co., Chicago, Ill.  
Baldwin Equipment & Supply Co., Chicago, Ill.  
Chase Fdry. & Mfg. Co., Columbus, O.  
Georgia Car & Locomotive Co., Atlanta, Ga.  
Hunt Co., C. W., West New Brighton, N. Y.  
Males Co., The, Cincinnati, O.  
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.  
Raleigh Iron Works Co., Raleigh, N. C.  
Smith Co., T. L., Atlanta, Ga.  
Stuebner Iron Works, G. L., Long Island City, New York, N. Y.  
Union Iron Works, Selma, Ala.

**Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]****Car Couplers and Knuckles.**

Safety Car H'g & L'g'tg Co., New York, N. Y.

**Car Lighting and Heating.**

Safety Car H'g & L'g'tg Co., New York, N. Y.

**Car Steps. (Extension.)**

Blake Car Step Works, Charlotte, N. C.

**Car Wheels, Axles and Trucks.**

Carnegie Steel Co., Pittsburgh, Pa.  
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.  
Union Iron Works, Selma, Ala.



**Coal Cutters.**  
Ingersoll-Rand Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
McKernan-Terry Drill Co., New York, N. Y.

**Coal Handling Machinery.**  
Bartlett & Snow Co., C. O., Cleveland, O.  
Brown Hoisting Mfg. Co., Cleveland, O.  
Hayward Co., New York, N. Y.  
Hunt Co., C. W., West New Brighton, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Link-Belt Co., Nictown (Philadelphia), Pa.  
Mead-Morrison Mfg. Co., Cambridgeport, Mass.  
Robins Conveying Belt Co., New York, N. Y.  
Williams Co., The G. H., Cleveland, O.

**Coal Tar and By-Products.**  
Barrett Mfg. Co., Philadelphia, Pa.  
Carolina Portland Cement Co., Charleston, S. C.

**Coke.**  
Alabama Cons. Coal & Iron Co., Birmingham, Ala.  
Flat Top Fuel Co., Bluefield, W. Va.  
Pittsburgh-Buffalo Co., Pittsburgh, Pa.  
Rogers, Brown & Co., Cincinnati, O.  
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.

**Collapsible Steel Forms.** (For Concrete Work.)  
Blaw Col. Steel Centering Co., Pittsburgh, Pa.  
Concrete Form & Engine Co., Detroit, Mich.

**Concrete Construction (Steel Reinforcement.)**  
American Steel & Wire Co., Chicago, Ill.  
Brown Hoisting Machinery Co., Cleveland, O.  
Concrete Steel Co., The, New York, N. Y.  
Concrete Steel Engineering Co., New York, N. Y.  
Ferro Concrete Construction Co., Cincinnati, O.  
Foster-Conington-Gould Co., Nashville, Tenn.  
Jeffrey Mfg. Co., Columbus, O.  
Richert Mfg. Co., Milwaukee, Wis.  
Specialty Eng. Co., Houston, Tex.  
Wight & Co., W. N., New York, N. Y.

**Concrete Curb Protection.** (Steel.)  
Steel Protected Concrete Co., Philadelphia, Pa.

**Concrete Dams.**  
Amburns Hydraulic Const. Co., Boston, Mass.  
Hydraulic Properties Co., New York, N. Y.

**Concrete Floor Dressing.** (Waterproof.)  
Gilden Varulsh Co., Cleveland, O.

**Concrete Forms.** (Metal.)  
Richert Mfg. Co., Milwaukee, Wis.

**Concrete Forms.** (Steel Collapsible.)  
Blaw Col. Steel Centering Co., Pittsburgh, Pa.  
Concrete Form & Engine Co., Detroit, Mich.

**Concrete Mixers.**  
Carolina Portland Cement Co., Charleston, S. C.  
Jeffrey Mfg. Co., Columbus, O.  
Hurd-Cuyler Mfg. Co., Chicago, Ill.  
Milwaukee Concrete Mixer & Mchry. Co., Milwaukee, Wis.  
Smith Co., T. L., Atlanta, Ga.  
Standard Scale & Supply Co., Pittsburgh, Pa.  
Waterloo Cement Mchry. Co., Waterloo, Iowa.

**Concrete Pile.** (Corrugated.)  
The Underground Const. Co., St. Louis, Mo.

**Concrete Reinforcing Bars.**  
Carroll Steel Co., Pittsburgh, Pa.  
Concrete Steel Co., The, New York, N. Y.  
Concrete Steel Engineering Co., New York, N. Y.  
Franklin Steel Co., Franklin, Pa.

**Concrete Ties.**  
Universal Concrete Tie Co., New Orleans, La.

**Condensers.**  
Alberger Condenser Co., New York, N. Y.  
Dean Bros. Steam Pump Works, Indianapolis, Ind.  
Hingham Machine Co., Pittsburgh, Pa.  
Wheeler Condenser & Eng. Co., New York, N. Y.  
York Mfg. Co., York, Pa.

**Conductor Pipe.**  
Edwards Mfg. Co., Cincinnati, O.  
Hussey & Co., C. G., Pittsburgh, Pa.  
Milwaukee Corrugating Co., Milwaukee, Wis.

**Contractors.** (Hydro-Electric Developments.)  
Multiple Arch Hyd. Const. Co., Ltd., Spartanburg, S. C.

**Contractors' Machinery and Supplies.** [See also Hoisting Machinery.]  
American Hoist & Derrick Co., St. Paul, Minn.  
American Locomotive Co., New York, N. Y.  
Austin Mfg. Co., Chicago, Ill.  
Case Threshing Mch. Co., J. I., Racine, Wis.  
Clyde Iron Works, Duluth, Minn.  
Contractors' Plant Mfg. Co., Ltd., Buffalo, N. Y.  
Exeter Machine Works, Pittsford, Pa.  
Flury Mfg. Co., S. Bangor, Pa.  
Hyde Bros. & Co., New York, N. Y.  
Ingersoll-Rand Co., New York, N. Y.  
Linton, W. J., New York, N. Y.  
Males Co., The, Cincinnati, O.  
Marine Metal & Supply Co., New York, N. Y.  
Maryland Equipment & Supply Co., Baltimore, Md.  
Mead-Morrison Mfg. Co., Cambridgeport, Mass.  
Monaghan Mch. Co., Chicago, Ill.  
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.  
Owen Bucket Co., Cleveland, O.  
Pickett Co., Inc., H. W., Philadelphia, Pa.  
Pipe & Contractors' Supply Co., New York, N. Y.  
Robins Conveying Belt Co., New York, N. Y.  
Smith Co., T. L., Atlanta, Ga.  
Stuehler, Iron Works, G. L., Long Island City, New York, N. Y.  
Williamson Bros. Co., Philadelphia, Pa.

**Conveying Machinery.**  
Bartlett & Snow Co., C. O., Cleveland, O.  
Brown Hoisting Mchry. Co., Cleveland, O.  
Caldwell & Son Co., H. W., Chicago, Ill.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Flury Mfg. Co., S. Bangor, Pa.  
Hayward Co., New York, N. Y.  
Hunt Co., C. W., West New Brighton, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Lidgerwood Mfg. Co., New York, N. Y.  
Link-Belt Co., Nictown (Philadelphia), Pa.  
Mead-Morrison Mfg. Co., Cambridgeport, Mass.  
McLanahan-Stone Mch. Co., Hollidaysburg, Pa.  
Robins Conveying Belt Co., New York, N. Y.

**Cooling Towers.**  
Alberger Condenser Co., New York, N. Y.  
Wheeler Condenser & Eng. Co., New York, N. Y.

**Cordage.**  
American Mfg. Co., New York, N. Y.  
Fosterick & Hanson Rope Co., St. Louis, Mo.  
Columbian Rope Co., Auburn, N. Y.  
Plymouth Cordage Co., North Plymouth, Mass.  
Turner Co., J. Spencer, New York, N. Y.  
Whitlock Cordage Co., New York, N. Y.

**Cordage Machinery.**  
Baskett-Dawes Machine Co., Boston, Mass.

**Corn-Mill Machinery.**  
Burdick & Marmon Co., Indianapolis, Ind.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Start Co., B. F., Baltimore, Md.  
Wolf Co., Chambersburg, Pa.

**Cotton Duck.**  
Turner Co., J. Spencer, New York, N. Y.

**Cotton Oil and Products.**  
American Cotton Oil Co., New York, N. Y.

**Cotton Yarns.** (Commission Merchants.)  
Paulson, Linkroum & Co., New York, N. Y.

**Cotton-Gin Machinery.**  
Carver Cotton Gin Co., East Bridgewater, Mass.  
Continental Gin Co., Birmingham, Ala.  
Gibbs Machinery Co., Columbia, S. C.  
Van Winkle Gin & Machine Co., Atlanta, Ga.

**Cotton-Mill Machinery.**  
American Mach. & Mfg. Co., Charlotte, N. C.  
American Supply Co., Providence, R. I.  
Draper Co., Hopedale, Mass.  
Kilston Machine Shop, Lowell, Mass.  
Lowell Machine Shop, Lowell, Mass.  
Mason Machine Works, Taunton, Mass.  
Saco-Petee Co., Newton Upper Falls, Mass.  
Whitlin Machine Works, Whitinsville, Mass.  
Whitinsville Spring Ring Co., Whitinsville, Mass.

**Cotton-Mill Supplies.**  
American Supply Co., Providence, R. I.  
Whitinsville Spring Ring Co., Whitinsville, Mass.

**Cottonseed-Oil Machinery.**  
Buckeye Iron & Brass Works, Dayton, O.  
Burruss Engineering Co., Atlanta, Ga.  
Callahan Co., W. P., The, Dayton, O.  
Cardwell Machine Co., Richmond, Va.  
Carver Cotton Gin Co., East Bridgewater, Mass.  
Continental Gin Co., Birmingham, Ala.  
Giddens Foundry & Machine Co., Columbus, Ga.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Van Winkle Gin & Machine Co., Atlanta, Ga.

**Couplings.**  
American Spiral Pipe Works, Chicago, Ill.  
Brown Co., A. & F., New York, N. Y.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Giddens Foundry & Machine Co., Columbus, Ga.  
Sinclair-Scott Co., Baltimore, Md.  
Stoddard's Sons, T. B., Chambersburg, Pa.

**Couplings.** (Car.)  
Werner Chain & Iron Co., Lebanon, Pa.

**Couplings.** (Hose, Air, Gas, Steam and Water.)  
National Tube Co., Pittsburgh, Pa.

**Covering.** (Pipe, Boiler, etc.)  
Carolina Portland Cement Co., Charleston, S. C.  
John-Manville Co., H. W., New York, N. Y.  
Southern Pipe Covering Co., Inc., Richmond, Va.

**Cranes.** (Locomotive.)  
American Hoist & Derrick Co., St. Paul, Minn.  
Brown Hoisting Machinery Co., Cleveland, O.  
Browning Engineering Co., Cleveland, O.  
Exeter Machine Works, Pittsford, Pa.  
Ohio Locomotive Crane Co., Bucyrus, Ohio.

**Cranes.** (Traveling, Hand, Power, Hydraulic.)  
Brown Hoisting Machinery Co., Cleveland, O.  
Hayward Co., New York, N. Y.  
Lane Mfg. Co., Montpelier, Vt.  
Northern Engineering Works, Detroit, Mich.  
Speldel, J. G., Reading, Pa.

**Crayons.**  
Lowell Crayon Co., Lowell, Mass.

**Crematories.** (Garbage.)  
Specialty Eng. Co., Houston, Tex.

**Creosote.**  
Carolina Portland Cement Co., Charleston, S. C.

**Creosote Oil.**  
Atlantic Turpentine & Refining Co., Savannah, Ga.

**Creosoted Wood Block.** (Contractors for Laying.)  
Creosoted Wood Block Pav. Co., New Orleans, La.

**Creosoting Works.**  
Gulfport Creosoting Co., Gulfport, Miss.  
Internat'l Creosot'g & Cons. Co., Galveston, Tex.  
National Lumber & Creos. Co., Texarkana, Ark.  
Southern Creosoting Co., Ltd., Sillidell, La.  
Southern Wood Preserving Co., Atlanta, Ga.

**Crossarms and Pins.**  
Carolina Electrical Co., Raleigh, N. C.  
Internat'l Creosot'g & Cons. Co., Galveston, Tex.  
Southern Creosoting Co., Ltd., Sillidell, La.  
Western Electric Co., New York, N. Y.

**Crossings.** [See Railroad Frogs and Switches.]

**Crosstie Machine.**  
Standard Cross Tie Mch. Co., New Orleans, La.

**Crossties.**  
Internat'l Creosot'g & Cons. Co., Galveston, Tex.  
National Lumber & Creos. Co., Texarkana, Ark.  
Naylor & Co., S. E., Gulfport, Miss.  
Southern Creosoting Co., Ltd., Sillidell, La.  
Universal Concrete Tie Co., New Orleans, La.

**Crossties.** (Reinforced Concrete.)  
Universal Concrete Tie Co., New Orleans, La.

**Crossties.** (Steel.)  
Carnegie Steel Co., Pittsburgh, Pa.

**Crushers.** (Corn and Cob.)  
Gardner Crusher Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Williams Pat. Crusher & Pulv. Co., Chicago, Ill.

**Crushers.** (Rock.)  
Austin Mfg. Co., Chicago, Ill.  
Case Threshing Mch. Co., J. I., Racine, Wis.  
Cresson Co., Geo. V., Philadelphia, Pa.  
Gardner Crusher Co., New York, N. Y.  
Lehigh Crusher Co., Ltd., Catasauqua, Pa.  
Power & Mining Machinery Co., Cudahy, Wis.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Smith Co., T. L., Atlanta, Ga.  
Universal Road Mchry. Co., Kingston, N. Y.  
Waterloo Cement Mchry. Co., Waterloo, Iowa.

**Crushing and Pulverizing Machinery.**  
Aising Engineering Co., J. R., New York, N. Y.  
Austin Mfg. Co., Chicago, Ill.  
Bartlett & Snow Co., C. O., Cleveland, O.  
Cresson Co., Geo. V., Philadelphia, Pa.  
Gardner Crusher Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Lehigh Crusher Co., Ltd., Catasauqua, Pa.  
McLanahan-Stone Mch. Co., Hollidaysburg, Pa.  
Power & Mining Machinery Co., Cudahy, Wis.  
Pratt Engineering & Mch. Co., Atlanta, Ga.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Walker & Elliott, Wilmington, Del.  
Williams Pat. Crusher & Pulv. Co., Chicago, Ill.

**Culverts.** (Corrugated Metal.)  
American Rolling Mill Co., Middletown, O.  
Canton Culvert Co., The, Canton, O.  
Dixie Culvert & Metal Co., Atlanta, Ga.  
Kentucky Culvert Mfg. Co., Buschel, Ky.  
New Orleans Rfg. & Metal Wks., New Orleans, La.  
North Carolina Metal Culv. Co., Greensboro, N. C.  
Roanoke Bridge Co., Roanoke, Va.  
Tennessee Metal Culvert Co., Nashville, Tenn.  
Virginia Metal & Culvert Co., Roanoke, Va.

**Culverts.** (Vitrified Pipe.)  
Bibb Sewer Pipe Co., Macon, Ga.  
Stevens Sons Co., H., Macon, Ga.

**Cupola Furnaces.**  
Northern Engineering Works, Detroit, Mich.  
Paxson Co., J. W., Philadelphia, Pa.  
Petroleum Iron Works Co., Sharon, Pa.

**Cuts.** (Half-tone, Line, etc.)  
Baltimore Maryland Engr. Co., Baltimore, Md.

**Cutter Heads.** (Woodworking.)  
Shimer & Sons, Samuel J., Milton, Pa.

**Cutter Grinders.**  
Abrasive Material Co., Philadelphia, Pa.  
Vitrified Wheel Co., Westfield, Mass.

**Dams.** (Multiple Arch Masonry.)  
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.

**Dams.** (Reinforced Concrete.)  
Amburns Hydraulic Const. Co., Boston, Mass.  
Hydraulic Properties Co., New York, N. Y.

**Derricks and Derrick Fittings.**  
American Hoist & Derrick Co., St. Paul, Minn.  
Monaghan Machine Co., Chicago, Ill.  
National Hoisting Engine Co., Harrison, N. J.  
Waterloo Cement Mchry. Co., Waterloo, Iowa.

**Designers and Illustrators.** (Printed Matter.)  
Baltimore Maryland Engr. Co., Baltimore, Md.

**Die Blocks.**  
Eric Forge Co., Erie, Pa.

**Ditching Machinery.**  
American Hoist & Derrick Co., St. Paul, Minn.  
American Locomotive Co., New York, N. Y.  
American Steel Dredge Co., Ft. Wayne, Ind.  
Browning Mfg. Co., Mansfield, O.  
Fairbanks Steam Shovel Co., Marion, O.  
Hayward Co., The, New York, N. Y.  
Marion Steam Shovel Co., Marion, O.  
Monaghan Machine Co., Chicago, Ill.  
Owen Bucket Co., Cleveland, O.  
Williams Co., The G. H., Cleveland, O.

**Doors.** (Birch Veneered.)  
Carolina Portland Cement Co., Charleston, S. C.  
Massey & Felton Lumber Co., Macon, Ga.

**Doors.** (Steel Rolling.)  
Kinneair Mfg. Co., Columbus, O.

**Doors.** (Tin Clad.)  
Victor Mfg. Co., Newburyport, Mass.

**Doors, Partitions.** (Metallic.)  
Dahlstrom Metallic Door Co., Jamestown, N. Y.  
United States Metal Products Co., New York, N. Y.

**Doors, Sash and Blinds.**  
Columbus Iron Works Co., Columbus, Ga.  
Massey & Felton Lumber Co., Macon, Ga.

**Draftsmen's Supplies.**  
Keuffel & Esser, Hoboken, N. J.  
Weber & Co., F., Philadelphia, Pa.

**Dredge Chains.**  
Werner Chain & Iron Co., Lebanon, Pa.

**Dredges.** [See Excavating Machinery.]

**Drills.** (Pneumatic.) [See also Drills, Rock and Mining.]  
Fort Wayne Electric Works, Fort Wayne, Ind.  
Ingersoll-Rand Co., New York, N. Y.  
Keystone Steam Well Mach. Co., Beaver Falls, Pa.  
McKernan-Terry Drill Co., New York, N. Y.

**Drills.** (Rock and Mining.)  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Fort Wayne Electric Works, Fort Wayne, Ind.  
Independent Pneumatic Tool Co., Chicago, Ill.  
Ingersoll-Rand Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
McKernan-Terry Drill Co., New York, N. Y.  
Wicks Bros., Jersey City, N. J.

**Drills.** (Twist.)  
Manning, Maxwell & Moore, Inc., New York, N. Y.  
Morose Twist Drill & Mch. Co., New Bedford, Mass.

**Drive Well Points and Well Supplies.**  
National Tube Co., Pittsburgh, Pa.

**Drop Forgings.**  
American Spiral Pipe Works, Chicago, Ill.  
Richmond Forgings Corporation, Richmond, Va.

**Drop Forging Machinery.**  
Bliss Co., E. W., Brooklyn, N. Y.

**Drying Machinery.**  
American Blower Co., Detroit, Mich.  
American Process Co., New York, N. Y.  
Bailey-Lehby Co., The, Charleston, S. C.  
Buffalo Forge Co., Buffalo, N. Y.  
Ruggles-Coles Engineering Co., New York, N. Y.  
Sturtevant Co., B. F., Hyde Park, Mass.

**Drykilns.**  
American Blower Co., Detroit, Mich.  
Buffalo Forge Co., Buffalo, N. Y.  
Union Iron Works Co., Selma, Ala.

**Dumbwaiters.**  
Hollister-Whitney Co., Quincy, Ill.  
Sidney Elevator & Mfg. Co., Sidney, O.  
Speldel, J. G., Reading, Pa.

**Dump Wagons and Wagon Boxes.**  
Case Threshing Mch. Co., J. I., Racine, Wis.  
Eagle Wagon Works, Auburn, N. Y.  
Troy Wagon Works Co., Troy, O.

**Dust-Collecting Systems.**  
Buffalo Forge Co., Buffalo, N. Y.  
Savannah Blow Pipe Co., Savannah, Ga.  
Standard Blower & Metal Mfg. Co., Atlanta, Ga.

**Dynamite.**  
du Pont de Nemours Powder Co., E. I., Wilmington, Del.

**Dynamometers and Motors.** (Steam Turbine.)  
De Laval Steam Turbine Co., Trenton, N. J.  
Emerson Steam Pump Co., Alexandria, Va.  
Fort Wayne Electric Works, Ft. Wayne, Ind.  
General Electric Co., Schenectady, N. Y.  
Southwark Fdry. & Mch. Co., Philadelphia, Pa.  
Terry Steam Turbine Co., New York, N. Y.  
Western Electric Co., New York, N. Y.  
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.

**Eaves.** (Trough.)  
Edwards Mfg. Co., Cincinnati, O.  
Hussey & Co., C. G., Pittsburgh, Pa.  
Milwaukee Corrugating Co., Milwaukee, Wis.

**Ejectors.** (Auto Sewage.)  
Blaisdell Machinery Co., Bradford, Pa.

**Electric Machinery.** (Dynamometers, Generators, Motors, etc.)  
Allis-Chalmers Co., Milwaukee, Wis.  
American Engine Co., Bound Brook, N. J.  
American Machine Co., Louisville, Ky.  
Crockett-Wheeler Co., Amper, N. J.  
Emberg's Elect. & Mech. Wks., St. Joseph, Mich.  
Fairbanks, Morse & Co., Chicago, Ill.  
Fort Wayne Electric Works, Ft. Wayne, Ind.  
General Electric Co., Schenectady, N. Y.  
Gregory Electric Co., Chicago, Ill.  
Kentucky Electrical Co., Owensboro, Ky.  
Lee Electric Co., Baltimore, Md.  
Miller-Owen Elec. Co., Pittsburgh, Pa.  
Piedmont Electric Co., Asheville, N. C.  
Ridgway Dynamo & Engine Co., Ridgway, Pa.  
Riker Machinery Co., New York, N. Y.  
Robbins & Myers Co., Springfield, O.  
Southwark Fdry. & Mch. Co., Philadelphia, Pa.  
Sturtevant Co., B. F., Hyde Park, Mass.  
Triumph Electric Co., Cincinnati, O.  
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.

**Elevators.** (See Magnet Electric.)  
Elevating, Conveying and Power Transmission Machinery. [See also Conveying Mchry. and Power Transmission Mchry.]  
Jeffrey Mfg. Co., Columbus, O.

**Elevators.**  
Albro-Clem Elevator Co., Philadelphia, Pa.  
American Machine Co., Louisville, Ky.  
Curran Elevator Co., James H., Cincinnati, O.  
Hollister-Whitney Co., Quincy, Ill.  
Kansas City Elevator Mfg. Co., Kansas City, Mo.  
Moffatt Machinery Mfg. Co., Charlotte, N. C.  
Ohio Elevator & Machine Co., Columbus, O.  
Sibley Elevator & Mfg. Co., Sidney, O.  
Speldel, J. G., Reading, Pa.  
Wassaw Elevator Co., Baltimore, Md.  
Westbrook Elevator Co., Danville, Va.

**Elevator Safety Appliances.**  
Koth Elevator Safety Co., Inc., Baltimore, Md.

**Elevator Buckets.**  
Caldwell & Son Co., H. W., Chicago, Ill.  
Dodge Mfg. Co., Mishawaka, Ind.  
Jeffrey Mfg. Co., Columbus, O.  
Link-Belt Co., Philadelphia, Pa.

**Elevator Enclosures and Cabs.**  
Bolles Iron & Wire Works, J. E., Detroit, Mich.  
Cincinnati Mfg. Co., Cincinnati, O.  
Dow Wire Works, Louisville, Ky.  
Dufur & Co., Baltimore, Md.  
Dufur, Ragscott & Co., Baltimore, Md.  
Jones & Co., L. E., Baltimore, Md.  
Meyers Mfg. Co., The, Fred J. H., Hamilton, O.  
Ohio Elevator & Machine Co., The, Columbus, O.  
Otis Elevator Co., New York, N. Y.  
Southern Wire & Iron Mfg. Co., Dallas, Tex.

**Elevator Rops.** [See Wire Rope.]

**Elevator Safety Gates.**  
Richmond Safety Gate Co., Richmond, Ind.

**Emery Wheels.** [See Grinding Wheels.]

**Engineers—**  
COMBUSTION.  
Improved Equipment Co., New York, N. Y.

CONSULTING.  
Graham, Edgar M., Muskogee, Okla.  
Judson Engineering Co., H. S., Savannah, Ga.  
Lewis, Fred H., Birmingham, Ala.  
Lide, Martin J., Birmingham, Ala.  
Macfarren, S. J., Washington, D. C.  
Miller, C. E., Pittsburgh, Pa.  
Woodmansee, Davidson & Sisson, Chicago, Ill.  
Young, W. W., New York, N. Y.

DESIGNING—CONSTRUCTING.  
Brindley Co., New York, N. Y.  
Foster-Creighton-Gould Co., Nashville, Tenn.  
Gulf Coast Constr. Co., Houston, Tex.  
Hague, John, St. Louis, Mo.  
Harlow Co., James H., Baltimore, Md.  
Judson Engineering Co., H. S., Savannah, Ga.  
Klotz, B. G., San Antonio, Tex.  
Specialty Eng. Co., Houston, Tex.  
Stone & Webster Eng. Co., Boston, Mass.  
Summers & Co., L. L., Chicago, Ill.  
White & Co., J. G., New York, N. Y.

DESIGNING, CONSTRUCTING, POWER PLANTS, ETC.  
Brindley Co., New York, N. Y.  
Dodge, Day & Zimmerman, Philadelphia, Pa.  
Emory & Elsenbrey, Philadelphia, Pa.  
Lide, Henry L., Chicago, Ill.  
Lockwood, Greene & Co., Boston, Mass.  
MacLanahan Eng. Co., J. H., Baltimore, Md.  
Manning-Hughes Co., Charlotte, N. C.  
Multiple Arch Hyd. Const. Co., Ltd., Spartanburg, S. C.  
Sircine, J. E., Greenville, S. C.  
Spiker, Wm. C., Atlanta, Ga.  
Stevens, John A., Lowell, Mass.  
Virginia Bridge & Iron Co., Roanoke, Va.  
Whitfield, Geo. H., Richmond, Va.

DRAINAGE.  
Brindley Co., New York, N. Y.  
Morgan Engineering Co., Memphis, Tenn.

EFFICIENCY.  
Macfarren, S. J., Washington, D. C.

ELECTRIC, CIVIL, ETC.  
Arnold Co., The, Chicago, Ill.  
Brindley Co., New York, N. Y.  
Corran & Corran, Greenwood, S. C.  
Crockett-Wheeler Co., Amper, N. J.  
Drane, Brent S., Charlotte, N. C.  
Emory & Elsenbrey, Philadelphia, Pa.  
Kellholts, F. O., Baltimore, Md.  
Layman, E. F., Cincinnati, O.  
Lewis, Fred H., Birmingham, Ala.  
Lide, Martin J., Birmingham, Ala.  
Manning-Hughes Co., Charlotte, N. C.  
Morgan Engineering Co., Memphis, Tenn.  
Potter, Alexander, New York, N. Y.  
Redding & Howard, Baltimore, Md.  
Rucker, B. Parks, Charlotte, N. C.  
Waldo, W., Houston, Tex.  
White & Co., J. G., New York, N. Y.  
Whitfield, Geo. H., Richmond, Va.  
Young Co., C. S., San Antonio, Tex.

GAS.  
Les, Henry L., Chicago, Ill.

GEOLOGICAL.  
Clapp, Frederick G., Pittsburgh, Pa.  
Davis, Geo. C., Philadelphia, Pa.  
Froehling & Robertson, Richmond, Va.

HYDRAULIC, SANITARY AND SEWERAGE.  
Brindley Co., New York, N. Y.  
Burgwyn, C. F. E., Richmond, Va.  
Harlow Co., James H., Baltimore, Md.  
Hutton, T. Chaikler, Wilmington, Del.  
Manning-Hughes Co., Charlotte, N. C.  
McCarthy Co., Inc., The, J. B., Atlanta, Ga.  
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.  
Myers, E. W., Greensboro, N. C.  
Pew, Arthur, Atlanta, Ga.  
Specialty Eng. Co., Houston, Tex.  
Tucker & Laxton, Charlotte, N. C.

ICE AND REFRIGERATING.  
Hague, John, St. Louis, Mo.  
Tait-Nordmeyer Eng. Co., St. Louis, Mo.

ILLUMINATING.  
Holophane Co., Newark, Ohio.

LANDSCAPE.  
Drane, Brent S., Charlotte, N. C.  
Redding & Howard, Baltimore, Md.

**Engineers--**

**REINFORCED CONCRETE CONSTRUCTION, BUILDINGS, BRIDGES, ETC.**  
Concrete Steel Engineering Co., New York, N. Y.  
Gardner & Howe, Memphis, Tenn.  
Layman, E. F., Cincinnati, O.

**WATER-WORKS.**  
Burgwyn, C. P. E., Richmond, Va.  
Myers, E. W., Greensboro, N. C.

**Engines.**

**GAS AND GASOLINE.**  
Blaisdell Machinery Co., Bradford, Pa.  
Bogart Gas Power Eng. Co., Buffalo, N. Y.  
Fairbanks, Morse & Co., Chicago, Ill.  
Mietz, A., New York, N. Y.  
Otto Gas Engine Works, Philadelphia, Pa.  
Power Mfg. Co., Lima, Ohio.  
Standard Gas Power Co., Atlanta, Ga.  
Westinghouse Machine Co., The Pittsburg, Pa.

**OIL.**  
Covington Mch. Co., New York, N. Y.  
Mietz, A., New York, N. Y.  
Power Mfg. Co., Lima, Ohio.

**Engines. (Steam.)**

Allis-Chalmers Co., Milwaukee, Wis.  
American Blower Co., Detroit, Mich.  
American Engine Co., Round Brook, N. J.  
American Heat & Derrick Co., St. Paul, Minn.  
Ames Iron Works, Oswego, N. Y.  
Atlas Engine Works, Indianapolis, Ind.  
Ball Engine Co., Erie, Pa.  
Brownell Co., The Dayton, O.  
Buffalo Forge Co., Buffalo, N. Y.  
Cameron & Harkley Co., Charleston, S. C.  
Chicago House Wrecking Co., Chicago, Ill.  
Cooper Co., C. & G., Mt. Vernon, O.  
Engberg's Elect. & Mch. Wks., St. Joseph, Mich.  
Gibbs Machinery Co., Columbus, S. C.  
Greenwald Co., I. & E., Cincinnati, O.  
Griffith & Wedge Co., The Zanesville, O.  
Harrisburg Pdry. & Mch. Wks., Harrisburg, Pa.  
Hooven, Owen, Rentschler Co., Hamilton, O.  
Houston, Stanwood & Gamble Co., Cincinnati, O.  
Leffel & Co., James, Springfield, O.  
Lombard Iron Works, Augusta, Ga.  
Mecklenburg Iron Works, Charlotte, N. C.  
Morris Machine Works, Baldwinville, N. Y.  
Murray Iron Works Co., Burlington, Ia.  
Oil City Boiler Co., Oil City, Pa.  
Phoenix Iron Works Co., Meadville, Pa.  
Price Machinery Co., S. M., Norfolk, Va.  
Ridgway Dynamo & Engine Co., Ridgway, Pa.  
Schodell's Sons Co., J. S., Macon, Ga.  
Smith-Courtney Co., Richmond, Va.  
Southern Engine & Boiler Works, Jackson, Tenn.  
Sturtevant Co., B. F., Hyde Park, Mass.  
Union Iron Works Co., Selma, Ala.  
Vilter Mfg. Co., Milwaukee, Wis.  
Westinghouse Machine Co., Pittsburg, Pa.

**Envelope Sealer and Stamper.**  
Commercial Sales & Mfg. Co., Oberlin, O.

**Envelopes.**

Young & Selden Co., Baltimore, Md.

**Excavating Machinery. (Steam Shovels, etc.)**

American Locomotive Co., New York, N. Y.  
American Steel Dredge Co., Ft. Wayne, Ind.  
Baldwin Equipment & Supply Co., Chicago, Ill.  
Browning Mfg. Co., Mansfield, O.  
Bryceus Co., So. Milwaukee, Wis.  
Cable Excavator Co., Philadelphia, Pa.  
Fairbanks Steam Shovel Co., Marion, O.  
Hayward Co., New York, N. Y.  
Jeffrey Mfg. Co., Columbus, O.  
Lidgerwood Mfg. Co., New York, N. Y.  
Males Co., Cincinnati, O.  
Marion Steam Shovel Co., Marion, O.  
Monaghan Machine Co., Chicago, Ill.  
Owen Bucket Co., Cleveland, O.  
Williams Co., The G. H., Cleveland, O.

**Excelsior Machinery.**

Kline, Lewis T., Alpena, Mich.

**Exhaust Heads.**

Abendroth & Root Mfg. Co., Newburgh, N. Y.  
American Spiral Pipe Works, Chicago, Ill.  
Greenwald Co., I. & E., Cincinnati, O.  
Hoppes Mfg. Co., Springfield, O.

**Exhibits. (Machinery Builders' Equipment and Supplies.)**

Bourse, The, Philadelphia, Pa.  
Builders' Exchange, Baltimore, Md.

**Expansion Joints.**

Alberger Condenser Co., New York, N. Y.  
Badger & Sons Co., E. B., Boston, Mass.

**Explosives.**

du Pont de Nemours Powder Co., E. I., Wilmington, Del.

**Extension Steps. (For Railroad Coaches.)**

Blake Car Step Works, Charlotte, N. C.

**Factory Sites. (Town and Railroad.) [See Industrial, Agricultural and Commercial Opportunities.]****Fans. (Electric.)**

General Electric Co., Schenectady, N. Y.  
Robbins & Myers Co., Springfield, O.  
Western Electric Co., New York, N. Y.  
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.

**Fans. (Ventilating.) [See Blowers, Exhaust Fans.]****Fastener Driving Machine. (Corrugated Joint.)**

Saranac Machine Co., St. Joseph, Mich.

**Feed-Water Heaters and Purifiers.**

Alberger Condenser Co., New York, N. Y.  
American Water Softener Co., Philadelphia, Pa.  
Blake & Knowles Steam Pump Works, New York, N. Y.  
Brownell Co., Dayton, O.  
Exeter Machine Works, Pittston, Pa.  
Gibbs Machinery Co., Columbus, S. C.  
Greenwald Co., I. & E., Cincinnati, O.  
Hoppes Mfg. Co., Springfield, O.  
McAdoo, Thomas, Philadelphia, Pa.  
Murray Iron Works Co., Burlington, Ia.  
National Pipe Bending Co., New Haven, Conn.  
Seale & Sons Co., Wm. B., Pittsburg, Pa.  
Stewart Heater Co., Buffalo, N. Y.  
Wilmington Iron Works, Wilmington, N. C.

**Feed-Water Heater and Purifier and Oil Separator Combined.**

Blake & Knowles Steam Pump Works, New York, N. Y.  
Stewart Heater Co., Buffalo, N. Y.

**Felt. (Building, Sheathing.)**

Barrett Mfg. Co., Philadelphia, Pa.

**Fencing, Entrance Gates. (Iron, Steel, Wire.)**

American Steel & Wire Co., Chicago, Ill.  
Bolles Iron & Wire Works, J. E., Detroit, Mich.  
Bow Wire Works, Louisville, Ky.  
Dufur & Co., Baltimore, Md.  
New Jersey Wire Cloth Co., Trenton, N. J.  
Ohio Elevator & Mach. Co., The Columbus, O.

**Fertilizer Machy. [See also Phosphate Mch.]**

Campbell, F. F., Philadelphia, Pa.  
Fratt Eng. & Mch. Co., Atlanta, Ga.  
Smith Co., T. L., Atlanta, Ga.  
Valk & Murdoch Iron Works, Charleston, S. C.  
Walker & Elliott, Wilmington, Del.  
Wilmington Iron Works, Wilmington, N. C.

**Files.**

Barnett Co., G. & H., Philadelphia, Pa.  
Delta File Works, Philadelphia, Pa.  
Nicholson File Co., Providence, R. I.

**Filters. (Water, for Domestic and Industrial Purposes.)**

American Water Softener Co., Philadelphia, Pa.  
International Filter Co., Chicago, Ill.  
Lynn-Superior Co., The Cincinnati, O.  
New York Con. Jewell Fil. Co., New York, N. Y.  
Roberts Filter Mfg. Co., Philadelphia, Pa.  
Seale & Sons Co., Wm. B., Pittsburg, Pa.  
Tucker & Laxton, Charlotte, N. C.

**Financial Publication.**

Financial Review, New York, N. Y.

**Fire Alarm Boxes.**

Balto. Mch. Products Co. (Relay Station P. O.), Baltimore, Md.

**Fire Clay Brick. [See Brick, Fire Clay.]****Fire Box Blocks.**

Ashland Fire Brick Co., Ashland, Ky.

**Fire Door Fixtures.**

Peters & Son, Jas., Philadelphia, Pa.

Victor Mfg. Co., Newburyport, Mass.

**Fire Extinguishers.**

Badger & Sons Co., E. B., Boston, Mass.

General Fire Extinguisher Co., Providence, R. I.

**Fire Escapes.**

Bolles Iron & Wire Works, J. E., Detroit, Mich.

Chesapeake Iron Works, Baltimore, Md.

**Fire Insurance.**

Hartford Fire Insurance Co., Hartford, Conn.

**Fireplaces. (Artistic Brick.)**

Fiske & Co., Inc., New York, N. Y.

**Fireproof Building Construction. (Steel.) [See Concrete Construction.]****Fireproof Building Material.**

Dahlstrom Metallic Door Co., Jamestown, N. Y.

Johns-Manville Co., H. W., New York, N. Y.

**Fireproof Doors and Shutters.**

Dahlstrom Metallic Door Co., Jamestown, N. Y.

Kinnear Mfg. Co., Columbus, O.

New Orleans Roof & Metal Co., New Orleans, La.

Richmond Safety Gate Co., Richmond, Ind.

United States Metal Products Co., New York, N. Y.

Victor Mfg. Co., Newburyport, Mass.

**Fireproof Windows. [See Window Frames and Sashes (Fireproof).]****Fire Protection Hardware.**

Peters & Son, Jas., Philadelphia, Pa.

**Flanges. (Iron and Steel.)**

American Cast Iron Pipe Co., Birmingham, Ala.

American Pipe & Construction Co., Phila., Pa.

American Spiral Pipe Works, Chicago, Ill.

Cameron Steam Pump Wks., A. S., New York, N. Y.

Dart Manufacturing Co., E. M., Providence, R. I.

General Fire Extinguisher Co., Providence, R. I.

Gumorgan Pipe & Foundry Co., Lynchburg, Va.

McWane Pipe Works, Lynchburg, Va.

National Tube Co., Pittsburg, Pa.

U. S. Cast Iron Pipe & Fdy. Co., New York, N. Y.

Whitlock Coil Pipe Co., Hartford, Conn.

Wood & Co., H. D., Philadelphia, Pa.

**Flexible Joints.**

Moran Flex. Steam Joint Co., Inc., Louisville, Ky.

**Flooring. (Cement.)**

Dagostin & Angelini Bros., Montgomery, Ala.

**Flooring. (Hardwood, Maple, Oak.)**

Carolina Portland Cement Co., Charleston, S. C.

Northern Haraw'd Flooring Co., Nashville, Tenn.

Nashville Haraw'd Flooring Co., Nashville, Tenn.

**Flour and Grist Mill Machinery and Supplies.**

Caldwell & Sons Co., H. W., Chicago, Ill.

Gibbs Machinery Co., Columbus, S. C.

Nordyke & Macdon Co., Indianapolis, Ind.

Salem Foundry & Machine Works, Salem, Va.

Starr Co., B. F., Baltimore, Md.

Veatch & Co., L. R., Louisville, Ky.

Wolf Co., Chambersburg, Pa.

**Flushtank Regulator.**

Modern Iron Works, Quincy, Ill.

**Flushtanks.**

Merritt & Co., Camden, N. J.

**Foot Valves.**

Cameron Steam Pump Wks., A. S., New York, N. Y.

**Forges.**

Buffalo Forge Co., Buffalo, N. Y.

Sturtevant Co., B. F., Hyde Park, Mass.

**Forgings.**

Richmond Forgings Corporation, Richmond, Va.

Weimer Chain & Iron Co., Lebanon, Pa.

**Forging. (Hammered.)**

Erie Forge Co., Erie, Pa.

**Forms. (Steel Collapsible.)**

Concrete Form & Engine Co., Detroit, Mich.

**Foundations. (Waterproof.)**

Underground Constr. Co., The St. Louis, Mo.

**Foundations. (Open or Pneumatic.)**

Missouri Val. Bridge & Iron Co., Leavenworth, Kan.

**Foundry Equipment and Supplies.**

Paxson Co., J. W., Philadelphia, Pa.

**Frogs. [See Railroad Frogs and Switches.]****Fuel Economizers.**

Green Fuel Economizer Co., Matteawan, N. Y.

Sturtevant Co., B. F., Hyde Park, Mass.

**Fuel Oil.**

Gulf Refining Co., Pittsburg, Pa.

Texas Co., The New York, N. Y.

**Fuel Oil Equipment.**

Petroleum Iron Works Co., Sharon, Pa.

**Furnace Builders.**

Ritter-Conley Mfg. Co., Pittsburg, Pa.

**Fuses, Bases and Fittings.**

Johns-Manville Co., H. W., New York, N. Y.

**Galvanized Steel and Iron.**

American Sheet & Tin Plate Co., Pittsburg, Pa.

J. C. H. Galvanizing Co., Philadelphia, Pa.

La Belle Iron Works, Steubenville, O.

McCulla, Harold, Philadelphia, Pa.

New Orleans Roof & Metal Co., New Orleans, La.

Wood Iron & Steel Co., Alan, Philadelphia, Pa.

Youngstown Sheet & Tube Co., Youngstown, O.

**Garages. (Fireproof and Portable.)**

Harry Steel Co., O. K., St. Louis, Mo.

**Gas Blowers. (Turbine.)**

Terry Steam Turbine Co., New York, N. Y.

**Gas Compressors.**

Blaisdell Machinery Co., Bradford, Pa.

Ingersoll-Rand Co., New York, N. Y.

**Gas Engines. [See Engines, Gas.]****Gas Holders.**

Chicago Bridge & Iron Wks., Chicago, Ill.

**Gas Plants.**

Western Gas Construction Co., Ft. Wayne, Ind.

**Gas Plants and Benches.**

Improved Equipment Co., New York, N. Y.

**Gas Producers.**

Bogart Gas Power Eng. Co., Buffalo, N. Y.

Improved Equipment Co., New York, N. Y.

Otto Gas Engine Works, Philadelphia, Pa.

Standard Gas Power Co., Atlanta, Ga.

Westinghouse Machine Co., Pittsburg, Pa.

Wood & Co., R. D., Philadelphia, Pa.

**Gasoline and Kerosene.**

Gulf Refining Co., Pittsburg, Pa.

Texas Co., The New York, N. Y.

**Gas and Steam Fitters' Tools.**

Saunders' Sons, D., Yonkers, N. Y.

**Gaskets. (Rubber.)**

N. J. Car Spring & Rubber Co., Jersey City, N. J.

**Gears.**

Albro-Clem Elevator Co., Philadelphia, Pa.

Brown Co., A. & F., New York, N. Y.

Caldwell & Son Co., H. W., Chicago, Ill.

Crescent Co., Geo. V., Philadelphia, Pa.

Dayton Globe Iron Works Co., Dayton, O.

Dodge Manufacturing Co., Mishawaka, Ind.

Jeffrey Mfg. Co., Columbus, O.

Poole Engineering & Machine Co., Baltimore, Md.

Positive Clutch & Pulley Works, Buffalo, N. Y.

Trump Mfg. Co., Springfield, O.

**Geologists.**

Clapp, Frederick C., Pittsburg, Pa.

Freobling & Robertson, Richmond, Va.

**Glass. (Plate, etc.)**

Binswanger & Co., Memphis, Tenn.

Holephane Co., Newark, Ohio.

**Governors.**

Pickering Governor Co., Portland, Conn.

**Grain Elevator Supplies.**

Caldwell & Sons Co., H. W., Chicago, Ill.

Dodge Manufacturing Co., Mishawaka, Ind.

Jeffrey Mfg. Co., Columbus, O.

Link-Belt Co., Nicetown (Philadelphia), Pa.

**Granite.**

Harris Granite Quarries Co., Salisbury, N. C.

**Graphite.**

Detroit Graphite Co., Detroit, Mich.

Dixon Crucible Co., Joseph, Jersey City, N. J.

**Grates and Grate Bars.**

Thomas Grate Bar Co., Birmingham, Ala.

**Gravel.**

Arundel Sand & Gravel Co., Baltimore, Md.

Lathrop & Co., O. P., Richmond, Va.

**Greases and Lubricating Compounds.**

Cook's Sons, Adam, New York, N. Y.

Galena Signal Oil Co., Ft. Smith, Pa.

Robinson & Son Co., Wm. C., Baltimore, Md.

Texas Co., The New York, N. Y.

**Grease and Oil Cups and Lubricators.**

Cook's Sons, Adam, New York, N. Y.

**Grinders. (Gypsum, Limestone, etc.)**

Gardner Crusher Co., New York, N. Y.

Williams Pat. Crusher & Pulv. Co., Chicago, Ill.

**Grinding Wheels.**

Abrasive Material Co., Philadelphia, Pa.

Carborundum Co., Niagara Falls, N. Y.

Norton Co., Worcester, Mass.

Vitritified Wheel Co., Westfield, Mass.

**Groovers.**

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

**Gunpowder.**

du Pont de Nemours Powder Co., E. I., Wilmington, Del.

**Hammers. (Steam, Power, Pneumatic.)**

Chicago Pneumatic Tool Co., Chicago, Ill.



**Lathes. (Engine.)**  
Graves, Klusman & Co., Cincinnati, O.  
Manning, Maxwell & Moore, Inc., New York, N. Y.

**Lawn Furniture.**  
Bulles Iron & Wire Works, J. M., Detroit, Mich.  
Duffer & Co., Baltimore, Md.  
Duffer, Baggott & Co., Baltimore, Md.

**Leadite.**  
Leadite Co., The, Philadelphia, Pa.

**Lighting Equipment.**  
Holophane Co., Newark, Ohio.

**Lime.**  
Carolina Portland Cement Co., Charleston, S. C.  
Security Cement & Lime Co., Baltimore, Md.  
Tennessee Portland Cement Co., Charleston, S. C.  
Tennessee Portland Cement Co., Baltimore, Md.

**Lime. (Hydrated.)**  
Security Cement & Lime Co., Baltimore, Md.  
Tennessee Portland Cement Co., Baltimore, Md.

**Lime Kilns and Equipment.**  
Improved Equipment Co., New York, N. Y.

**Limestone Products.**  
Security Cement & Lime Co., Baltimore, Md.

**Liquor Filters.**  
International Filter Co., Chicago, Ill.

**Lithographers, Engravers.**  
Young & Seiden Co., Baltimore, Md.

**Loans.**  
Assets Realization Co., Chicago, Ill.

**Lockers. (Metal.)**  
Kelley Metal Ceiling Mfg. Co., S., Pittsburg, Pa.

**Locomotives.**  
**INDUSTRIAL.**  
American Locomotive Co., New York, N. Y.  
Baldwin Locomotive Works, The, Philadelphia, Pa.  
Bryers Machine Co., John F., Ravenna, O.  
Climax Mfg. Co., Corry, Pa.  
Davenport Locomotive Works, Davenport, Ia.  
Hessler Locomotive Works, Erie, Pa.  
Jeffrey Mfg. Co., Columbus, O.  
Lima Locomotive & Machine Co., Lima, O.  
Males Co., Cincinnati, O.  
Porter Co., H. K., Pittsburg, Pa.  
Vulcan Iron Works, Wilkes-Barre, Pa.

**RAILWAY.**  
American Locomotive Co., New York, N. Y.  
Baldwin Locomotive Works, The, Philadelphia, Pa.  
Lima Locomotive & Machine Co., Lima, O.  
Males Co., Cincinnati, O.  
Southern Supply Co., Norfolk, Va.

**Looms and Weaving Machinery.**  
Draper Co., Hopedale, Mass.  
Mason Machine Works, Taunton, Mass.

**Lumber.**  
Industrial Lumber Co., Elizabeth, La.  
Mason & Felton Lumber Co., Macon, Ga.

**Lumber. (Heavy Construction, Pitch Pine, etc.)**  
Mason & Felton Lumber Co., Macon, Ga.  
National Lumber & Creosote Co., Texarkana, Ark.  
Taylor & Co., S. E., Gulfport, Miss.

**Lumber. (Yellow Pine.)**  
Industrial Lumber Co., Elizabeth, La.

**Lumber Buggies.**  
Sole Steam Feed Works, Meridian, Miss.

**Lumber Stackers.**  
Sole Steam Feed Works, Meridian, Miss.

**Machinery. (Special.)**  
Bliss Co., E. W., Brooklyn, N. Y.  
Elise, Lewis T., Alpena, Mich.  
Lester & Co., Charles, Brooklyn, N. Y.  
Oil City Boiler Co., Oil City, Pa.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Ryersford Fdry. & Mch. Wks., Ryersford, Pa.  
Stratton & Bragg Co., Petersburg, Va.  
Universal Telegraphic Co., Baltimore, Md.

**Machinery and Supplies. (New and Second-Hand Bargains.)**  
Baltimore Metal Mchry. & Supply Co., Baltimore, Md.  
Boston Iron & Metal Co., Baltimore, Md.  
Brown, Jas. H., Brooklyn, N. Y.  
Chicago House Wrecking Co., Chicago, Ill.  
Cleveland Belting & Machinery Co., Cleveland, O.  
Dexter Railway Equipment Co., Chicago, Ill.  
Dunzels & Son, New York, N. Y.  
Hittner's Sons Co., Henry A., Philadelphia, Pa.  
Hyde Bros. & Co., New York, N. Y.  
Illinois Machinery Co., Chicago, Ill.  
Lehman, Charles T., Birmingham, Ala.  
Levene & Co., E., Philadelphia, Pa.  
Linton, W. J., New York, N. Y.  
Lodge & Shipley Machine Tool Co., Cincinnati, O.  
Marine Metal & Supply Co., New York, N. Y.  
Mathies Iron & Metal Co., G. St. Louis, Mo.  
Pannmiller Engineering Co., Chicago, Ill.  
Pickett Co., Inc., H. W., Philadelphia, Pa.  
Pipe & Contractors Supply Co., New York, N. Y.  
Pittsburgh Mchry. & Equip. Co., Pittsburgh, Pa.  
Prentiss Tool & Supply Co., New York, N. Y.  
Randle Machinery Co., Cincinnati, O.  
Reed Co., Howard W., Philadelphia, Pa.  
Riker Machinery Co., New York, N. Y.  
Samuel, Frank, Philadelphia, Pa.  
Serpent's Sons, Inc., L. F., Philadelphia, Pa.  
Southern Supply Co., Norfolk, Va.  
Tampa Machinery Exchange, Tampa, Fla.  
Texas Supply Co., Beaumont, Tex.  
Tomney, Frank, Philadelphia, Pa.  
Winter Co., Herman L., Philadelphia, Pa.  
Yensley, Thomas, Philadelphia, Pa.

**Machine Tools.**  
Graves, Klusman & Co., Cincinnati, O.  
Manning, Maxwell & Moore, Inc., New York, N. Y.

**Machinists. (Engineers.)**  
American Mch. & Mfg. Co., Charlotte, N. C.  
Roanoke Iron Works, Inc., Roanoke, Va.  
Stratton & Bragg Co., Petersburg, Va.  
Universal Telegraphic Co., Baltimore, Md.

**Magnesia Materials.**  
Johns-Manville Co., E. W., New York, N. Y.

**Magnetite. (Dead Burned.)**  
Barbison-Walker Refractories Co., Pittsburg, Pa.

**Magnets. (Electric Lift.)**  
Kroning Engineering Co., Cleveland, O.

**Magnet Electra. (For Cottonseed, Linseed and Hullers.)**  
Dixie Electro Magnet Co., Memphis, Tenn.

**Magnetic Separators.**  
Parson Co., J. W., Philadelphia, Pa.

**Mail Chutes.**  
Ottier Mail Chute Co., Rochester, N. Y.

**Mantels. (Wooden.)**  
Northcross Mantel Co., W. J., Memphis, Tenn.

**Marble Work. (Interior.)**  
Dagostin & Angelini Bros., Montgomery, Ala.  
Southern Mosaic Tile Co., Birmingham, Ala.

**Masonry Dams.**  
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.

**Mechanical Draft.**  
American Blower Co., Detroit, Mich.  
Buffalo Steam Pump Co., Buffalo, N. Y.  
Sturtevant Co., B. F., Hyde Park, Mass.

**Metal Ceilings. [See Ceilings, Metal.]**

**Metaline.**  
North Amer. Metaline Co., Long Island City, N. Y.

**Metal Culverts. [See Culverts.] (Corrugated Metal.)**

**Metal Polish.**  
Hoffman, Geo. W., Indianapolis, Ind.

**Metal Shingles.**  
Burris & Co., John T., Anderson, S. C.  
Chattanooga Rfg. & Fdry. Co., Chattanooga, Tenn.  
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.  
Cortright Metal Roofing Co., Philadelphia, Pa.  
Edwards Manufacturing Co., Cincinnati, O.  
Hyndman Roofing Co., Cincinnati, O.

**Metal Window Frames and Sashes.**  
Detroit Steel Products Co., Detroit, Mich.  
Edwards Mfg. Co., The, Cincinnati, O.  
Kelley Metal Cell. & Mfg. Co., S., Pittsburg, Pa.  
United States Metal Products Co., New York, N. Y.  
Volkmann & Co., Chicago, Ill.

**Metal Work. (Stamped and Embossed Hotel Checks, Key Tags, etc.)**  
American Railway Supply Co., New York, N. Y.

**Metal-Working Machinery.**  
Bertsch & Co., Cambridge City, Ind.  
Bliss Co., E. W., Brooklyn, N. Y.  
Gibbs Machinery Co., Columbia, S. C.  
Lester & Co., Chas., Brooklyn, N. Y.  
Price Machinery Co., S. M., Norfolk, Va.  
Ryersford Fdry. & Mch. Co., Ryersford, Pa.

**Micrometers, Calipers, Etc.**  
Starrett Co., L. S., Athol, Mass.

**Milk Filters. (Liquor, Milk, etc.)**  
International Filter Co., Chicago, Ill.

**Mill Engineers and Architects.**  
Lockwood, Greene & Co., Boston, Mass.  
Srinne, J. E., Greenville, S. C.

**Mill Supplies.**  
Appomattox Iron Wks. & Sup. Co., Petersburg, Va.  
Bailey-Leiby Co., Charleston, S. C.  
Cameron & Barkley Co., Charleston, S. C.  
Gainesville Iron Works, Gainesville, Ga.  
Greenwald Co., I. & E., Cincinnati, O.  
Lindsay, J. L., Inc., Richmond, Va.  
Lombard Iron Works, Augusta, Ga.  
Manning, Maxwell & Moore, Inc., New York, N. Y.  
Mecklenburg Iron Works, Charlotte, N. C.  
Nordyke & Marmon Co., Indianapolis, Ind.  
Salem Foundry & Machine Works, Salem, Va.  
Smith-Courtney Co., Richmond, Va.  
Starr Co., B. F., Baltimore, Md.  
Stratton & Bragg Co., Petersburg, Va.  
Ward-Becke Co., Washington, D. C.  
Wolf Co., Chambersburg, Pa.

**Mining Machinery. (Gold, Copper, Plate, etc.)**  
Bartlett & Snow Co., C. O., Cleveland, O.  
Jeffrey Mfg. Co., Columbus, O.  
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.  
Mecklenburg Iron Works, Charlotte, N. C.  
Nashville Armature Works, Nashville, Wis.  
Power & Mining Machinery Co., Cudahy, Wis.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

**Mixer Machinery.**  
Smith Co., T. L., Atlanta, Ga.

**Mixing Machinery.**  
Dunning, W. D., Syracuse, N. Y.  
Lynn-Superior Co., The, Cincinnati, O.

**Mortar Colors.**  
Chattanooga Paint Co., Chattanooga, Tenn.

**Motor Trucks.**  
Schacht Motor Car Co., Cincinnati, Ohio.

**Mouldings, Casings, etc.**  
Mason & Felton Lumber Co., Macon, Ga.

**Nails and Spikes.**  
American Steel & Wire Co., Chicago, Ill.  
Hoffman & Co., R. C., Baltimore, Md.  
Republic Iron & Steel Co., Youngstown, O.  
West Virginia Nail Co., The, Huntington, W. Va.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Nitre Pots, Eggs.**  
Pratt Engineering & Mach. Co., Atlanta, Ga.

**Nuts. [See Bolts, Nuts, Rivets, etc.]**

**Office Furniture.**  
Rose & Thompson, Baltimore, Md.

**Oils. (Lubricating, etc.)**  
Borne-Schrymer Co., New York, N. Y.  
Galena Signal Oil Co., Franklin, Pa.  
Gulf Refining Co., Pittsburg, Pa.  
Robinson & Son Co., Wm. C., Baltimore, Md.  
Texas Co., The, New York, N. Y.

**Oil-Burning Appliances.**  
Petroleum Iron Works Co., Sharon, Pa.

**Oil Cans.**  
Wall Mfg. Supply Co., P., Allegheny, Pa.

**Oil Engines. [See Engines (Oil).]**

**Oil Separators.**  
Stewart Heater Co., Buffalo, N. Y.

**Oil Stoves.**  
Carborundum Co., Niagara Falls, N. Y.  
Norton Co., Worcester, Mass.

**Oil-Well Machinery.**  
Keystone Steam Well Mach. Co., Beaver Falls, Pa.  
Williams Bros., Ithaca, N. Y.

**Ore Briquetting Machinery.**  
Devillers, Robert, Brooklyn, N. Y.

**Ornamental Iron Work.**  
Belmont Iron Works, Inc., Philadelphia, Pa.  
Bulles Iron & Wire Works, J. M., Detroit, Mich.  
Chattanooga Iron & Wire Wks., Chattanooga, Tenn.  
Chesapeake Iron Works, Baltimore, Md.  
Dow Wire Works Co., Louisville, Ky.  
Ohio Elevator & Machine Co., The, Columbus, O.  
Roanoke Iron Works, Inc., Roanoke, Va.  
Schreiber & Sons Co., The, L., Cincinnati, O.  
Snead Architectural Iron Works, Louisville, Ky.  
Southern Wire & Iron Mfg. Co., Dallas, Tex.

**Packing. (Asbestos, Metallic, Rubber, Leather, etc.)**  
American Huhn Packing Co., New York, N. Y.  
Jenkins Bros., New York, N. Y.  
Johns-Manville Co., H. W., New York, N. Y.  
N. J. Car Spring & Rubber Co., Jersey City, N. J.  
Power Specialty Co., New York, N. Y.

**Paint. (Bridge.)**  
Detroit Graphite Co., Detroit, Mich.  
Dixon Crucible Co., Jos., Jersey City, N. J.  
Linsine Co., Philadelphia, Pa.  
National Roofing Co., Tonawanda, N. Y.

**Paints. (Cold Water.)**  
Wilhelm Co., A., New York, N. Y.

**Paint. (Metal Preservative.)**  
Detroit Graphite Co., Detroit, Mich.  
Linsine Co., Philadelphia, Pa.  
National Roofing Co., Tonawanda, N. Y.  
Wilhelm Co., A., New York, N. Y.

**Paint. (Roofing, Building, etc.)**  
Armitage Mfg. Co., The, Richmond, Va.  
Bird & Son, F. W., East Walpole, Mass.  
Cameron & Barkley Co., Charleston, S. C.  
Carolina Portland Cement Co., Charleston, S. C.  
Chattanooga Paint Co., Chattanooga, Tenn.  
Detroit Graphite Co., Detroit, Mich.  
Dixon Crucible Co., Jos., Jersey City, N. J.  
Gildren Varnish Co., Cleveland, O.  
Linsine Co., Philadelphia, Pa.  
National Roofing Co., Tonawanda, N. Y.  
Standard Paint Co., New York, N. Y.  
Wilhelm Co., A., New York, N. Y.

**Painting. (Contractors for Bridges, Buildings, etc.)**  
Dinlaco & Bro., A., Pittsburg, Pa.

**Paint-making Machinery.**  
Campbell, P. F., Philadelphia, Pa.  
Lynn Superior Co., The, Cincinnati, O.

**Paper. (Roofing, Building, Sheathing, etc.)**  
Armitage Mfg. Co., Richmond, Va.  
Barrett Mfg. Co., Philadelphia, Pa.  
Bird & Son, F. W., East Walpole, Mass.  
Cameron & Barkley Co., Charleston, S. C.  
Southern Lumber & Cement Co., Charleston, S. C.  
Standard Roofing Co., Tulsa, Okla.

**Passenger Coach Steps. (Extension.)**  
Blake Car Step Works, Charlotte, N. C.

**Patent Attorneys.**  
Brown, Eugene C., Washington, D. C.  
Chandice & Co., H. Ellis, Washington, D. C.  
Chandice & Chandice, Washington, D. C.  
Evans & Co., Victor J., Washington, D. C.  
Owen, Richard B., Washington, D. C.

**Patterns.**  
Roanoke Iron Works, Inc., Roanoke, Va.

**Pavement Filler.**  
Barrett Mfg. Co., Philadelphia, Pa.

**Paving. (Contractors for Creosoted Wood Block.)**  
Creosoted Wood Block Pav. Co., New Orleans, La.

**Paving Blocks. (Granite.)**  
Harris Granite Quarries Co., Salisbury, N. C.

**Paving Blocks. (Wood Creosote-Resinate.)**  
Gulfport Creosoting Co., Gulfport, Miss.  
Southern Wood Preserving Co., Atlanta, Ga.  
U. S. Wood Preserving Co., New York, N. Y.

**Paving Brick.**  
Carlyle Paving Brick Co., Portsmouth, O.  
Copeland-Ingalls Shale Brick Co., Birmingham, Ala.

**Paving Machines. (Bituminous Materials.)**  
Smith Co., T. L., Atlanta, Ga.

**Perforated Metal.**  
Caldwell & Son, H. W., Chicago, Ill.  
Erdie Perforating Co., Rochester, N. Y.  
Hendrick Mfg. Co., The, Carbondale, Pa.  
Mundt & Sons, Charles, Jersey City, N. J.

**Perspectives. (Water Color, for Architects.)**  
Alger & Smith, Atlanta, Ga.

**Petroleum Refiners.**  
Gulf Refining Co., Pittsburg, Pa.  
Standard Oil Co., Cincinnati, O.

**Phosphate Machinery.**  
Aising Engineering Co., J. R., New York, N. Y.  
American Process Co., New York, N. Y.  
Bailey-Leiby Co., The, Charleston, S. C.  
Cameron & Barkley Co., Charleston, S. C.  
Link-Belt Co., Nicetown (Philadelphia), Pa.  
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.  
Pratt Engineering & Mach. Co., Atlanta, Ga.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Valk & Murdoch Iron Works, Charleston, S. C.  
Walker & Elliott, Wilmington, Del.

**Phosphor-Bronze. (Wire Rods, Sheets.)**  
Phosphor-Bronze Smelting Co., Philadelphia, Pa.

**Photo-Engravers.**  
Baltimore Maryland Engr. Co., Baltimore, Md.

**Pig Iron.**  
Alabama Coal & Iron Co., Birmingham, Ala.  
La Belle Iron Works, Steubenville, O.  
Republic Iron & Steel Co., Youngstown, O.  
Rogers, Brown & Co., Cincinnati, O.  
Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.

**Pile Drivers.**  
Browning Engineering Co., Cleveland, O.  
Bucyrus Co., Milwaukee, Wis.  
Vulcan Iron Works, Chicago, Ill.

**Piling. (Creosoted.)**  
Gulfport Creosoting Co., Gulfport, Miss.  
Intern'l Creosoting & Const. Co., Galveston, Tex.  
Southern Creosoting Co., Ltd., Sildell, La.

**Pillow Blocks.**  
Caldwell Co., Inc., W. B., Louisville, Ky.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Golden's Foundry & Machine Co., Columbus, Ga.

**Pine Tar.**  
Atlantic Turpentine & Ref'n'g Co., Savannah, Ga.

**Pipe. (Cast Iron.)**  
American Cast Iron Pipe Co., Birmingham, Ala.  
American Pipe & Construction Co., Phila., Pa.  
General Fire Extinguisher Co., Providence, R. I.  
Glamorgan Pipe & Foundry Co., Lynchburg, Va.  
McWane Pipe Works, Lynchburg, Va.  
U. S. Cast Iron Pipe & Fdry. Co., New York, N. Y.  
Wood & Co., B. D., Philadelphia, Pa.

**Pipe. (Coll.)**  
Columbus Iron Works Co., Columbus, Ga.  
Frick Co., The, Waynesboro, Pa.  
National Pipe Bending Co., New Haven, Conn.  
Whitlock Coll. Pipe Co., Hartford, Conn.  
York Mfg. Co., York, Pa.

**Pipe. (Corrugated Culvert.)**  
American Rolling Mill Co., Middletown, O.  
Canton Culvert Co., The, Canton, O.  
Dixie Culvert & Metal Co., Atlanta, Ga.  
Harry Steel Co., O. K., St. Louis, Mo.  
Kentucky Culvert Mfg. Co., Buechel, Ky.  
North Carolina Metal Culv. Co., Greensboro, N. C.  
Virginia Metal Culv. Co., Roanoke, Va.  
Virginia Railway Supply Co., Norfolk, Va.

**Pipe. (Riveted.)**  
Abendroth & Root Mfg. Co., Newburgh, N. Y.  
Keeler Co., E., Williamsport, Pa.  
Petroleum Iron Works Co., Sharon, Pa.

**Pipe. (Spiral Riveted.)**  
Abendroth & Root Mfg. Co., Newburgh, N. Y.  
American Spiral Pipe Works, Chicago, Ill.

**Pipe. (Wood.)**  
Wyckoff & Son Co., A., Elmira, N. Y.

**Pipe. (Wrought.)**  
General Fire Extinguisher Co., Providence, R. I.  
La Belle Iron Works, Steubenville, O.  
National Tube Co., Pittsburg, Pa.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Pipe Bends.**  
Columbus Iron Works Co., Columbus, Ga.  
Whitlock Coll. Pipe Co., Hartford, Conn.

**Pipe Covering. (Steam.)**  
Johns-Manville Co., H. W., New York, N. Y.  
Southern Pipe Covering Co., Inc., Richmond, Va.  
Wyckoff & Son Co., A., Elmira, N. Y.

**Pipe Cutting and Threading Machinery.**  
Saunders' Sons, D., Yonkers, N. Y.

**Pipe Fittings.**  
American Cast Iron Pipe Co., Birmingham, Ala.  
Columbus Iron Works Co., Columbus, Ga.  
General Fire Extinguisher Co., Providence, R. I.  
York Mfg. Co., York, Pa.

**Pipe Jointing. (Gas and Water Main.)**  
Leadite Co., The, Philadelphia, Pa.

**Pipe Locator.**  
Modern Iron Works, Quincy, Ill.

**Pipe Unions and Joints.**  
Dart Mfg. Co., E. M., Providence, R. I.  
National Tube Co., Pittsburg, Pa.  
Whitlock Coll. Pipe Co., Hartford, Conn.

**Pipe Wrenches and Cutters.**  
Saunders' Sons, D., Yonkers, N. Y.

**Pitch.**  
Barrett Mfg. Co., Philadelphia, Pa.

**Planers. (Metal.)**  
Manning, Maxwell & Moore, Inc., New York, N. Y.

**Planing Mill Work.**  
Mason & Felton Lumber Co., Macon, Ga.

**Plaster of Paris.**  
King & Co., J. B., New York, N. Y.

**Plaster.**  
Security Cement & Lime Co., Baltimore, Md.

**Plaster. (Asbestos Cement, Plaster of Paris.)**  
King & Co., J. B., New York, N. Y.

**Plaster Boards.**  
King & Co., J. B., New York, N. Y.  
Plaster Products Co., Hampton, Va.

**Plaster Machinery.**  
Bartlett & Snow Co., C. O., Cleveland, O.

**Plates.**  
Cincinnati Iron & Steel Co., Cincinnati, O.  
Wood Iron & Steel Co., Alan, Philadelphia, Pa.

**Plugs. (Wall.)**  
Wicks & Co., Milton O., Glen Cove, N. Y.

**Pneumatic Tools. [See Tools—Pneumatic.]**

**Poles. (Transmission Line; Steel.)**  
Ritter-Conley Mfg. Co., Pittsburg, Pa.

**Polishing Machinery. (Wheels and Blocks.)**  
Abrasive Material Co., Philadelphia, Pa.  
Carborundum Co., Niagara Falls, N. Y.  
Vitified Wheel Co., Westfield, Mass.

**Power Transmission Machinery.**  
Bailey-Leiby Co., Charleston, S. C.  
Brown Co., A. & F., New York, N. Y.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Caldwell & Son Co., H. W., Chicago, Ill.  
Cresson Co., Geo. V., Philadelphia, Pa.  
Dayton Globe Iron Works Co., Dayton, O.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Golden's Foundry & Machine Co., Columbus, Ga.  
Greenwald Co., I. & E., Cincinnati, O.  
Jeffrey Mfg. Co., Columbus, O.  
Jones & Laughlin Steel Co., Pittsburg, Pa.  
Lane Mfg. Co., Montpelier, Vt.  
Lindsay, J. L., Inc., Richmond, Va.  
Link-Belt Co., Nicetown (Philadelphia), Pa.  
More Chain Co., Ithaca, N. Y.  
Nordyke & Marmon Co., Indianapolis, Ind.  
Poole Engineering & Machine Co., Baltimore, Md.  
Positive Clutch & Pulley Works, Buffalo, N. Y.  
Price Machinery Co., S. M., Norfolk, Va.  
Schodel's Sons Co., J. B., Macon, Ga.  
Wolf Co., The, Chambersburg, Pa.  
Wood's Sons Co., T. B., Chambersburg, Pa.

**Presses. (Baling, Cottonseed Oil, etc., Hydraulic and Power.)**  
Boomer & Bouchert Press Co., Syracuse, N. Y.  
Cardwell Machine Co., Richmond, Va.  
Continental Gln Co., Birmingham, Ala.  
Gibbs Machinery Co., Columbia, S. C.

**Presses. (Stamping.)**  
Bliss Co., E. W., Brooklyn, N. Y.  
Lester & Co., Charles, Brooklyn, N. Y.

**Preventive for Sap Stain.**  
Church & Dwight Co., New York, N. Y.

**Printers. (Book, Catalog, Job, etc.)**  
Fleet-McGinley Co., Baltimore, Md.  
Franklin Press Co., Petersburg, Va.

- Promoters.**  
Assets Realization Co., Chicago, Ill.  
Electric Bond & Share Co., New York.
- Protector Steel.** (Concrete Curb, Steps, etc.)  
Steel Protected Concrete Co., Philadelphia, Pa.
- Pulleys.** (Friction Clutch.)  
Brown Co., A. & F., New York, N. Y.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Caldwell & Son Co., H. W., Chicago, Ill.  
Cresson Co., Geo. V., Philadelphia, Pa.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Dodge Engineering & Machine Co., Baltimore, Md.  
Positive Clutch & Pulley Works, Buffalo, N. Y.  
Sincclair-Scott Co., Baltimore, Md.  
Woods' Sons Co., T. B., Chambersburg, Pa.
- STEEL SPLIT.**  
American Pulley Co., Philadelphia, Pa.  
Dodge Manufacturing Co., Mishawaka, Ind.
- WOOD SPLIT.**  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Caldwell & Son Co., H. W., Chicago, Ill.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Lane Mfg. Co., Montpelier, Vt.  
Positive Clutch & Pulley Works, Buffalo, N. Y.  
Saginaw Mfg. Co., Saginaw, Mich.  
Salem Foundry & Machine Works, Salem, Va.
- Pulleys, Shafting and Hangers.**  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Caldwell & Son Co., H. W., Chicago, Ill.  
Cresson Co., Geo. V., Philadelphia, Pa.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Golden's Foundry & Machine Co., Columbus, Ga.  
Greenwald Co., I. & E., Cincinnati, O.  
Jeffrey Mfg. Co., Columbus, O.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
Lane Mfg. Co., Montpelier, Vt.  
Link-Belt Co., Nictown (Philadelphia), Pa.  
Norden & Marmon Co., Indianapolis, Ind.  
Positive Clutch & Pulley Works, Buffalo, N. Y.  
Standard Roller Bearing Co., Philadelphia, Pa.  
Woods' Sons Co., T. B., Chambersburg, Pa.
- Pumps.** (Centrifugal.)  
Alberger Pump Co., New York, N. Y.  
Buffalo Steam Pump Co., Buffalo, N. Y.  
De Laval Steam Turbine Co., Trenton, N. J.  
Emerson Steam Pump Co., Alexandria, Va.  
Erie Pump & Engine Works, Erie, Pa.  
Goulds Mfg. Co., Seneca Falls, N. Y.  
Haydon Pump Co., Quincy, Ill.  
Morris Machine Works, Baldwinville, N. Y.  
Wheeler Condenser & Eng. Co., New York, N. Y.  
Wood & Co., R. D., Philadelphia, Pa.  
Worthington, H. R., New York, N. Y.
- Pumps.** (Deep Well.)  
McGowan Co., John H., Cincinnati, O.
- Pumps.** (Hydraulic.)  
Buffalo Steam Pump Co., Buffalo, N. Y.  
Cardwell Machine Co., Richmond, Va.  
Dean Bros. Steam Pump Wks., Indianapolis, Ind.  
Emerson Steam Pump Co., Alexandria, Va.  
Erie Pump & Engine Wks., Erie, Pa.  
Goulds Mfg. Co., Seneca Falls, N. Y.  
Worthington, H. R., New York, N. Y.
- Pumps.** (Lift and Force.)  
Goulds Mfg. Co., Seneca Falls, N. Y.  
Ingersoll-Rand Co., New York, N. Y.
- Pumps.** (Odorous and Excavating.)  
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Pneumatic.)  
Ingersoll-Rand Co., New York, N. Y.
- Pumps.** (Boiler Feed.)  
Alberger Pump Co., New York, N. Y.  
Cameron Steam Pump Wks., A. B., New York, N. Y.  
Dean Bros. Steam Pump Wks., Indianapolis, Ind.  
Goulds Mfg. Co., Seneca Falls, N. Y.  
McGowan Co., John H., Cincinnati, O.  
Moffatt Machinery Mfg. Co., Charlotte, N. C.  
Murray Iron Works Co., Burlington, Ia.  
Myers & Bros., F. E., Ashland, O.  
Union Steam Pump Co., Battle Creek, Mich.  
Worthington, H. R., New York, N. Y.
- Pumps.** (Rotary.)  
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Steam.)  
Blakeslee Mfg. Co., Du Quoin, Ill.  
Buffalo Steam Pump Co., Buffalo, N. Y.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Cameron & Barkley Co., Charleston, S. C.  
Cook Well Co., The, St. Louis, Mo.  
Dean Bros. Steam Pump Wks., Indianapolis, Ind.  
Dean Steam Pump Co., Holyoke, Mass.  
Gibbs Machinery Co., Columbia, S. C.  
Goulds Mfg. Co., Seneca Falls, N. Y.  
Hooven, Owen, Rentschler Co., Hamilton, O.  
Keystone Pump & Well Engine Co., Beaver Falls, Pa.  
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.  
McGowan Co., John H., Cincinnati, O.  
Murray Iron Works Co., Burlington, Ia.  
Erie Machinery Co., S. M., Norfolk, Va.  
Sydnor Pump & Well Co., Richmond, Va.  
Union Steam Pump Co., Battle Creek, Mich.  
Wheeler Condenser & Eng. Co., New York, N. Y.  
Worthington, H. R., New York, N. Y.
- Pumps.** (Trench.)  
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Vacuum.)  
Alberger Pump Co., New York, N. Y.  
Dean Bros. Steam Pump Wks., Indianapolis, Ind.  
Goulds Mfg. Co., Seneca Falls, N. Y.  
Smith Co., T. L., Atlanta, Ga.  
Union Steam Pump Co., Battle Creek, Mich.  
Wheeler Condenser & Eng. Co., New York, N. Y.
- Pumps.** (Water-works.)  
McGowan Co., John H., Cincinnati, O.
- Pumping Machinery.**  
Alfa-Chalmers Co., Milwaukee, Wis.  
Blakeslee Mfg. Co., Du Quoin, Ill.  
Cameron Steam Pump Wks., A. S., New York, N. Y.  
Cook Well Co., The, St. Louis, Mo.  
Dean Bros. Steam Pump Wks., Indianapolis, Ind.  
Dean Steam Pump Co., Holyoke, Mass.  
Deming Co., Salem, O.  
Erie Pump and Engine Works, Erie, Pa.  
Fairbanks, Morse & Co., Chicago, Ill.  
Gibbs Mfg. Co., Seneca Falls, N. Y.  
Hooven, Owen, Rentschler Co., Hamilton, O.  
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.  
McGowan Co., John H., Cincinnati, O.  
Moffatt Machinery Mfg. Co., Charlotte, N. C.  
Morris Machine Works, Baldwinville, N. Y.  
Myers & Bros., F. E., Ashland, O.  
Sydnor Pump & Well Co., Richmond, Va.  
Union Steam Pump Co., Battle Creek, Mich.  
Wood & Co., R. D., Philadelphia, Pa.  
Worthington, H. R., New York, N. Y.
- Punching and Shearing Machinery.**  
Bertsch & Co., Cambridge City, Ind.  
Bliss Co., E. W., Brooklyn, N. Y.  
Roversford Foundry & Mach. Co., Roversford, Pa.
- Pyrites Burners.**  
Pratt Engineering & Mach. Co., Atlanta, Ga.
- Quarrying and Stonecutting Machinery.**  
Ingersoll-Rand Co., New York, N. Y.
- Railings, Grilles, etc. (Brass.)**  
McKenna Bros. Brass Co., Pittsburgh, Pa.
- Railroads.** (Agricultural and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]
- Railroad Equipment and Supplies.** (New and Second-hand.)  
American Frog & Switch Co., Hamilton, O.  
American Locomotive Co., New York, N. Y.  
American Valve & Meter Co., Cincinnati, O.  
Baldwin-Lobby Co., The, Charleston, S. C.  
Baldwin Equipment & Supply Co., Chicago, Ill.  
Benjamin Equip. Co., Harry, St. Louis, Mo.  
Birmingham Rail & Loco. Co., Birmingham, Ala.  
Boston Iron & Metal Co., Baltimore, Md.  
Cincinnati Frog & Switch Co., Cincinnati, O.  
Foster Co., L. B., Pittsburgh, Pa.  
Georgia Car & Locomotive Co., Atlanta, Ga.  
Hoffman & Co., R. C., Baltimore, Md.  
Indiana Steel & Iron Co., Pittsburgh, Pa.  
Kilby Frog & Switch Co., Birmingham, Ala.  
Macleary, J. H., Suffolk, Va.  
Malee Co., Cincinnati, O.  
Manning, Maxwell & Moore, Inc., New York, N. Y.  
Maryland Equipment & Supply Co., Baltimore, Md.  
Mathes Iron & Metal Co., G. St. Louis, Mo.  
May & Turner Co., Atlanta, Ga.  
National Iron & Steel Co., Houston, Tex.  
Newhall Eng. Co., Geo. M., Philadelphia, Pa.  
Pickett Co., Inc., H. W., Philadelphia, Pa.  
Q & C Co., New York, N. Y.  
Reed Co., Howard, Philadelphia, Pa.  
Robinson & Orr, Pittsburgh, Pa.  
Sherwood, E. C., New York, N. Y.  
Smith-Courtney Co., Richmond, Va.  
Southern Iron & Equipment Co., Atlanta, Ga.  
Southern Supply Co., Norfolk, Va.  
Steel Rail Supply Co., The, New York, N. Y.  
United States Rail Co., Cumberland, Md.  
Vulcan Iron Works, Wilkes-Barre, Pa.  
Weir Frog Co., Cincinnati, O.  
West Virginia Rail Co., The, Huntington, W. Va.  
Wilson & Co., E. H., Philadelphia, Pa.  
Zelicker Supply Co., Walter A., St. Louis, Mo.
- Railroad Frogs and Switches.**  
American Frog & Switch Co., Hamilton, O.  
Cincinnati Frog & Switch Co., Cincinnati, O.  
Kilby Frog & Switch Co., Birmingham, Ala.  
Mathes Iron & Metal Co., G. St. Louis, Mo.  
May & Turner Co., Atlanta, Ga.  
Robinson & Orr, Pittsburgh, Pa.  
Sweet's Steel Co., Williamsport, Pa.  
Weir Frog Co., Cincinnati, O.
- Railroad Tie.** (Reinforced Concrete.)  
Universal Concrete Tie Co., New Orleans, La.
- Rails.** (Steel.)  
Baldwin Equipment & Supply Co., Chicago, Ill.  
Carnegie Steel Co., Pittsburgh, Pa.  
Foster Co., L. B., Pittsburgh, Pa.  
Frank, J. E., Atlanta, Ga.  
Hoffman & Co., R. C., Baltimore, Md.  
Hyde Bros. & Co., Pittsburgh, Pa.  
Indiana Steel & Iron Co., Pittsburgh, Pa.  
Levy & Co., Henry, Philadelphia, Pa.  
Macleary, J. H., Suffolk, Va.  
Mathes Iron & Metal Co., G. St. Louis, Mo.  
May & Turner Co., Atlanta, Ga.  
National Iron & Steel Co., Houston, Tex.  
Newhall Eng. Co., Geo. M., Philadelphia, Pa.  
Republie Iron & Steel Co., Youngstown, O.  
Robinson & Orr, Pittsburgh, Pa.  
Sherwood, E. C., New York, N. Y.  
Southern Iron & Equipment Co., Atlanta, Ga.  
Steel Rail Supply Co., The, New York, N. Y.  
Sweet's Steel Co., Williamsport, Pa.  
Tennessee Coal, Iron & R. R. Co., B'ham, Ala.  
United States Rail Co., Cumberland, Md.  
West Virginia Rail Co., The, Huntington, W. Va.  
Wilson & Co., E. H., Philadelphia, Pa.  
Zelicker Supply Co., Walter A., St. Louis, Mo.
- Rail Braces, Crossings, etc.** [See R.R. Frogs and Switches.]
- Rail Joints.**  
Q & C Co., New York, N. Y.
- Railways.** (Industrial.)  
Chase Fdry. & Mfg. Co., Columbus, O.  
Hunt Co., C. W., West New Brighton, N. Y.  
Link-Belt Co., Nictown (Philadelphia), Pa.
- Rams.** (Hydraulic.) [See Hydraulic Rams.]
- Reamers.**  
Morse Twist Drill & Mach. Co., New Bedford, Mass.
- Reflectors.**  
Holophane Co., Newark, Ohio.
- Refrigerating Machinery and Supplies.**  
American Hub Packing Co., New York, N. Y.
- Reinforcing Bars.**  
Carnegie Steel Co., Pittsburgh, Pa.  
Concrete Steel Co., New York, N. Y.  
Concrete Steel Engineering Co., New York, N. Y.  
Franklin Steel Co., Franklin, Pa.
- Repairing.** (Armatures and Elec. App.)  
Nashville Armature Works, Nashville, Tenn.
- Repairing.** (Power Plants.)  
Strickland Mch. Co., Richmond, Va.
- Riveters.** (Pneumatic.)  
Chicago Pneumatic Tool Co., Chicago, Ill.  
Independent Pneumatic Tool Co., Chicago, Ill.  
Ingersoll-Rand Co., New York, N. Y.
- Road Machinery.**  
Austin-Western Co., Ltd., The, Chicago, Ill.  
Blount, C. F., Atlanta, Ga.  
Buffalo Steam Roller Co., Buffalo, N. Y.  
Case Threshing Mach. Co., J. I., Racine, Wis.  
Iroquois Iron Works, Buffalo, N. Y.  
Kelly Springfield Road Roller Co., Springfield, O.  
Syracuse Chilled Plow Co., Syracuse, N. Y.  
Universal Road Mch. Co., Kingston, N. Y.
- Roadmaking Materials.**  
Standard Oil Co., Inc., Road Oil Dept.  
Texas Co., The, New York, N. Y.
- Road Roller.** (Steam.)  
Austin-Western Co., Ltd., The, Chicago, Ill.  
Buffalo Steam Roller Co., Buffalo, N. Y.  
Case Threshing Mach. Co., J. I., Racine, Wis.  
Iroquois Iron Works, Buffalo, N. Y.  
Kelly Springfield Road Roller Co., Springfield, O.  
Universal Road Mch. Co., Kingston, N. Y.
- Road Oil.**  
Gulf Refining Co., Pittsburgh, Pa.  
Prime White Road Oil Co., Cincinnati, O.  
Standard Oil Co., Inc., Road Oil Dept.  
Texas Co., The, New York, N. Y.
- Road Plows.**  
Case Threshing Mach. Co., J. I., Racine, Wis.  
Syracuse Chilled Plow Co., Syracuse, N. Y.
- Road Preservative.**  
Gulf Refining Co., Pittsburgh, Pa.  
Standard Oil Co., Inc., Road Oil Dept.  
Texas Co., The, New York, N. Y.
- Rock Crushers.** [See Crushers, Rock.]
- Roll Grinding and Corrugating.** (Flour Mills.)  
Vestch & Co., L. B., Louisville, Ky.
- Rolled Metal Shapes.** (For Building Material Manufacturers.)  
United States Metal Products Co., New York, N. Y.
- Rolls.** (Bending and Straightening.)  
Bertsch & Co., Cambridge City, Ind.
- Roofers' and Tanners' Supplies.**  
Merchant & Evans Co., Philadelphia, Pa.
- Roofing.** (Contractors for Laying.)  
Dinlaco & Bro., A., Pittsburgh, Pa.
- Roofing.** (Felt, Tar, Asbestos, Asphalt, Tin, etc.)  
Allen, Herbert F. L., Washington, D. C.  
American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Armstrong Mfg. Co., Richmond, Va.  
Barber Asphalt Paving Co., Philadelphia, Pa.  
Barrett Mfg. Co., Philadelphia, Pa.  
Bird & Son, F. W., East Walpole, Mass.  
Cameron & Barkley Co., Charleston, S. C.  
Carolina Portland Cement Co., Charleston, S. C.  
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.  
Johns-Manville Co., H. W., New York, N. Y.  
National Roofing Co., Tonawanda, N. Y.  
Standard Paint Co., New York, N. Y.  
Standard Roofing Co., Tulsa, Okla.  
Warren-Ehret Co., Philadelphia, Pa.
- Roofing.** (Cement.)  
Carey Mfg. Co., Philip, Cincinnati, O.
- Roofing.** (Metal Shingles.) [See Shingles, Metal.]  
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.  
Corright Metal Roofing Co., Philadelphia, Pa.  
Edwards Mfg. Co., The, Cincinnati, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.
- Roofing.** (Slate.)  
East Bangor Consol. Slate Co., East Bangor, Pa.  
Galt & Sons, John, New York, N. Y.  
Genuine Bangor Slate Co., Easton, Pa.  
Hower, J. K., Slattington, Pa.  
Johnson, E. J., New York, N. Y.
- Roofing Tile.**  
National Roofing Tile Co., Lima, O.
- Roofing and Siding.** (Bird Sand and Chipped Slate Surface.)  
Birmingham & Seaman Co., Chicago, Ill.
- Roofing and Siding.** (Flexible Cement, Bur-lap Inserted.)  
Birmingham & Seaman Co., Chicago, Ill.
- Roofing and Siding.** (Metal.)  
American Rolling Mill Co., Middletown, O.  
American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Cameron & Barkley Co., Charleston, S. C.  
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.  
Corright Metal Roofing Co., Philadelphia, Pa.  
Edwards Mfg. Co., The, Cincinnati, O.  
Hyndman Roofing Co., Cincinnati, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
New Orleans Rfg. & Metal Wks., New Orleans, La.  
Tennessee Metal Culvert Co., Nashville, Tenn.  
Youngstown Sheet & Tube Co., Youngstown, O.
- Rope.**  
American Mfg. Co., New York, N. Y.  
Broderick & Bascum Rope Co., St. Louis, Mo.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Columbian Rope Co., Auburn, N. Y.  
Plymouth Cordage Co., North Plymouth, Mass.  
Turner Co., J. Spencer, New York, N. Y.  
Whitlock Cordage Co., New York, N. Y.
- Rope.** (Transmission and Hoisting.)  
American Mfg. Co., New York, N. Y.  
American Steel & Wire Co., Chicago, Ill.  
Broderick & Bascum Rope Co., St. Louis, Mo.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Columbian Rope Co., Auburn, N. Y.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Hunt Co., C. W., West New Brighton, N. Y.  
Plymouth Cordage Co., North Plymouth, Mass.  
Whitlock Cordage Co., New York, N. Y.  
Wood's Sons Co., T. B., Chambersburg, Pa.
- Rope Drives.**  
Brown Co., A. & F., New York, N. Y.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Caldwell & Son, H. W., Chicago, Ill.  
Cresson Co., Geo. V., Philadelphia, Pa.  
Dodge Manufacturing Co., Mishawaka, Ind.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
Wood's Sons Co., T. B., Chambersburg, Pa.
- Rope Machinery.**  
Haskell-Dawes Machine Co., Boston, Mass.
- Rubber Goods.**  
Eureka Fire Hose Mfg. Co., New York, N. Y.  
New Jersey Car Sp'g & Rub. Co., Jersey City, N. J.
- Rules.** (Steel.)  
Lufkin Rule Co., The, Saginaw, Mich.  
Starrett Co., L. S., Athol, Mass.
- Safes and Vaults.**  
York Safe & Lock Co., York, Pa.
- Safety Appliances.** (For Elevator.)  
Roth Elevator Safety Co., Inc., Baltimore, Md.
- Sand.**  
Arundel Sand & Gravel Co., Baltimore, Md.  
Kirkpatrick Sand & Gravel Co., Birmingham, Ala.  
Lathrop & Co., C. F., Richmond, Va.
- Sand Rammers.**  
Chicago Pneumatic Tool Co., Chicago, Ill.
- Sap Stain Preventive.**  
Church & Dwight Co., New York, N. Y.
- Sash Chain.**  
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.
- Saws.**  
Gibbs Machinery Co., Columbia, S. C.  
Huther Bros. Saw Mfg. Co., Rochester, N. Y.  
Smith Machine Co., H. B., Smithville, N. J.  
Sydnor Pump & Well Co., Richmond, Va.
- Saws.** (Band.)  
Smith Machine Co., H. B., Smithville, N. J.
- Saws.** (Hack.)  
Starrett Co., L. S., Athol, Mass.
- Sawmill Dogs.**  
Soule Steam Feed Works, Meridian, Miss.
- Sawmills.**  
Appomattox Iron Wks. & Sup. Co., Petersburg, Va.  
Gainesville Iron Works, Gainesville, Ga.  
Vance & Co., J. A., Salem, N. C.
- Sawmill Machinery.**  
Baldwin-Lobby Co., Charleston, S. C.  
Cameron & Barkley Co., Charleston, S. C.  
Chase Turbine Mfg. Co., Orange, Mass.  
Gibbs Machinery Co., Columbia, S. C.  
Knight Mfg. Co., Canton, O.  
Lane Mfg. Co., Montpelier, Vt.  
Mecklenburg Iron Works, Charlotte, N. C.  
Price Mch. Co., S. M., Norfolk, Va.  
Schofield's Sons Co., J. S., Macon, Ga.  
Southern Engine & Boiler Works, Jackson, Tenn.  
Sydnor Pump & Well Co., Richmond, Va.  
Union Iron Works Co., Selma, Ala.  
Vance & Co., J. A., Salem, N. C.
- Saw Sharpeners.**  
Abrasive Material Co., Philadelphia, Pa.  
Carborundum Co., Niagara Falls, N. Y.  
Norton Co., Worcester, Mass.  
Vitrified Wheel Co., Westfield, Mass.
- Saw Sharpeners and Files.** (Cotton Gln.)  
Carver Cotton Gln Co., East Bridgewater, Mass.
- Scales.**  
Home Scale Co., New York, N. Y.  
Rome Scale & Mfg. Co., Rome, Ga.  
Standard Scale & Supply Co., Pittsburgh, Pa.
- Screening Apparatus.**  
Walker & Elliott, Wilmington, Del.
- Screens.** (Fly, Window and Door.)  
New Jersey Wire Cloth Co., Trenton, N. J.
- Screens.** (Mining.)  
Cresson Co., Geo. V., Philadelphia, Pa.  
Erdle Performing Co., Rochester, N. Y.  
Hendrick Mfg. Co., Carbondale, Pa.  
Jeffrey Mfg. Co., Columbus, O.  
Mudt & Sons, Charles, Jersey City, N. J.  
McLanahan Stone Mach. Co., Hollidaysburg, Pa.  
New Jersey Wire Cloth Co., Trenton, N. J.  
Waterloo Cement Mchry. Co., Waterloo, Iowa.
- Sealer and Stamper.** (Envelope.)  
Commercial Sales & Mfg. Co., Oberlin, O.
- Searchlights.**  
Ft. Wayne Electric Works, Ft. Wayne, Ind.
- Separators.** (Dust.)  
Buffalo Forge Co., Buffalo, N. Y.  
Raymond Bros. Impact Pulv. Co., Chicago, Ill.  
Savannah Blow Pipe Co., Savannah, Ga.
- Sewer Pipe Machinery.**  
Taplin-Rice-Clerkin Co., Akron, O.
- Sewer Pipe.** (Vitrified.)  
Rihb Sewer Pipe Co., Macon, Ga.  
Canton Sewer Pipe Co., Canton, Ind.  
Carolina Portland Cement Co., Charleston, S. C.  
Pittsburgh-Buffalo Co., Pittsburgh, Pa.  
Pomona Terra-Cotta Co., Pomona, N. C.  
Stevens Sons Co., H., Macon, Ga.
- Shades.**  
Holophane Co., Newark, Ohio.
- Shafting.** (Polished Steel.)  
Field & Co., Inc., Philadelphia, Pa.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
Republie Iron & Steel Co., Youngstown, O.
- Shafting Boxes.**  
Hyatt Roller Bearing Co., Newark, N. J.
- Shafting.** (See Pulleys, Shafting and Hangers.)
- Shapes.** (Rolled Steel, Brass and Bronze.)  
United States Metal Products Co., New York, N. Y.
- Sharpening Stones.**  
Norton Co., Worcester, Mass.  
Vitrified Wheel Co., Westfield, Mass.
- Shears.** (Metal.)  
Roversford Fdry. & Mach. Co., Roversford, Pa.
- Sheet Brass and Copper.**  
Hussey & Co., C. G., Pittsburgh, Pa.  
Merchant & Evans Co., Philadelphia, Pa.
- Sheet Metal Working Machinery.**  
Bliss Co., E. W., Brooklyn, N. Y.
- Sheet Steel and Iron.**  
Allegheny Steel Co., Pittsburgh, Pa.  
American Rolling Mill Co., Middletown, O.  
American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.  
Corright Metal Roofing Co., Philadelphia, Pa.  
Edwards Mfg. Co., Cincinnati, O.  
Hyndman Roofing Co., Cincinnati, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.
- Shipping Tags.**  
Dennison Mfg. Co., Boston, Mass.
- Shredders.** (Bark, Chip, etc.)  
Williams Pat. Crush. & Pul. Co., The, Chicago, Ill.
- Shutters.** (Iron.)  
Bolles Iron & Wire Works, J. E., Detroit, Mich.  
Chesapeake Iron Works, Baltimore, Md.
- Shutters.** (Steel Rolling.)  
Kinmer Mfg. Co., Columbus, O.
- Shutters.** (Tin Clad.)  
Victor Mfg. Co., Newburyport, Mass.
- Siding and Roofing.** (Bird Sand and Chipped Slate Surface.)  
Birmingham & Seaman Co., Chicago, Ill.
- Signs.** (Metal Lithographed.)  
Southern Can Co., Baltimore, Md.
- Signs.** (Road, Street, Outdoor, Advt.)  
Indestructible Sign Co., Blahopville, S. C.
- Skylights and Cornices.**  
Milwaukee Corrugating Co., Milwaukee, Wis.  
New Orleans Rfg. & Metal Wks., New Orleans, La.
- Slate Roofing.** [See Roofing (Slate).]
- Slate.** (Structural, Sanitary, etc.)  
Carolina Portland Cement Co., Charleston, S. C.  
East Bangor Consol. Slate Co., East Bangor, Pa.  
Genuine Bangor Slate Co., Easton, Pa.  
Hower, J. K., Slattington, Pa.
- Slaters' Tools.**  
Galt & Sons, John, New York, N. Y.
- Sluice Gates and Appliances.**  
Coldwell-Wilcox Co., Newburgh, N. Y.
- Smokestacks.** (Iron and Steel.)  
Chatanooga Boiler & Tank Co., Chat'n'gs, Tenn.  
Keeler Co., E., Williamsport, Pa.  
Lombard Iron Works, Augusta, Ga.  
Petroleum Iron Works Co., Sharon, Pa.  
Schofield's Sons Co., J. S., Macon, Ga.  
Virginia Bridge & Iron Co., Roanoke, Va.
- Smokestacks.** (Steel-Concrete.)  
Weber Chimney Co., Chicago, Ill.
- Speedometers.**  
Electric Speedometer Co., Washington, D. C.
- Spikes.** [See Nails and Spikes.]
- Springs.** (Machinery, Railway, Spiral.)  
American Steel & Wire Co., Chicago, Ill.  
Cary Spring Works, New York, N. Y.  
Raymond Mfg. Co., Ltd., Corry, Pa.
- Sprinklers.** (Automatic.)  
General Fire Extinguisher Co., Providence, R. I.



**Stamp Mills.**  
Macklenburg Iron Works, Charlotte, N. C.

**Stamps. (Brass, Rubber.)**  
Bennett Rubber Stamp & Seal Co., Atlanta, Ga.  
Dixie Seal & Stamp Co., Atlanta, Ga.

**Standpipes.**  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Hartley Boiler Works, Montgomery, Ala.  
Keefer Co., E., Williamsport, Pa.  
Petroleum Iron Works Co., Sharon, Pa.

**Stamping Machinery. (Fruit Package Basket, etc.)**  
Barnes Machine Co., St. Joseph, Mich.

**Stationers. (Envelopes, Letter and Bill Heads, etc.)**  
Franklin Press Co., Petersburg, Va.  
Young & Selden Co., Baltimore, Md.

**Steam Feeds.**  
Boyle Steam Feed Works, Meridian, Miss.

**Steam Fitters' Supplies.**  
General Fire Extinguisher Co., Providence, R. I.  
Hampden's Sons, D., Yonkers, N. Y.

**Steam Heating.**  
General Fire Extinguisher Co., Providence, R. I.  
Keefer Co., E., Williamsport, Pa.  
Peck-Hammond Co., The, Cincinnati, O.

**Steamship Lines.**  
Baltimore Steam Packet Co., Baltimore, Md.  
Chesapeake Steamship Co., Baltimore, Md.  
Merchant & Miners' Trans. Co., Baltimore, Md.

**Steam Separators.**  
Hogges Mfg. Co., Springfield, O.  
Lindstrom's Mach. Wks., John T., Allentown, Pa.

**Steam Shovel Chains.**  
Weimer Chain & Iron Co., Lebanon, Pa.

**Steam Shovels. (See Excavating Machinery.)**

**Steam Shovels. (Revolving.)**  
Brown Engineering Co., Cleveland, O.

**Steam Specialties.**  
Fowell Co., Wm., Cincinnati, O.

**Steam Traps.**  
American Blower Co., Detroit, Mich.  
Jenkins Bros., New York, N. Y.  
Lindstrom's Mach. Wks., John T., Allentown, Pa.

**Steel.**  
American Rolling Mill Co., Middletown, O.  
Dietrich Bros., Baltimore, Md.  
Field & Co., Inc., Philadelphia, Pa.  
Hoffman & Co., R. C., Baltimore, Md.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
La Belle Iron Works, Steubenville, O.  
Republic Iron & Steel Co., Youngstown, O.  
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.  
Wood Iron & Steel Co., Alan, Philadelphia, Pa.

**Steel. (Open Hearth.)**  
Erie Forge Co., Erie, Pa.

**Steels. (Tool.)**  
Field & Co., Inc., Philadelphia, Pa.  
Jennings Sons Steel Sales Co., Wm., St. Louis, Mo.

**Steel. (Vanadium.)**  
Carnegie Steel Co., Pittsburgh, Pa.

**Steel Buildings. (Designers, Builders.)**  
American Bridge Co. of New York, New York, N. Y.  
Baltimore Bridge Co., Baltimore, Md.  
Chesapeake Iron Works, Baltimore, Md.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Farris Bridge Co., Pittsburgh, Pa.  
Missouri Valley Bridge & Iron Co., Leavenworth, Kans.  
Phoenix Iron Co., Philadelphia, Pa.  
Ritter-Conley Mfg. Co., Pittsburgh, Pa.  
Roanoke Bridge Co., Roanoke, Va.  
Schreiber & Sons Co., The L., Cincinnati, O.  
Snead Architectural Iron Works, Louisville, Ky.  
Virginia Bridge & Iron Co., Roanoke, Va.

**Steel Casting.**  
Oracble Steel Castings Co., Lansdowne, Pa.  
Hoffman & Co., R. C., Baltimore, Md.  
Baltimore Steel Casting Co., Pittsburgh, Pa.

**Steel Forms. (For Concrete Construction.)**  
Blaw Col. Steel Centering Co., Pittsburgh, Pa.

**Steel Plate Work.**  
Casey-Hedges Co., Chattanooga, Tenn.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Hoffman & Co., R. C., Baltimore, Md.  
Phoenix Iron Co., Philadelphia, Pa.  
Republic Iron & Steel Co., Youngstown, O.  
Ritter-Conley Mfg. Co., Pittsburgh, Pa.

**Steel Protector. (Concrete Curb Steps, etc.)**  
[See Protector Steel.]

**Steel Sheet Piling.**  
Jones & Laughlin Steel Co., Pittsburgh, Pa.

**Stencils.**  
Baltimore Office Supply Co., Baltimore, Md.  
Dixie Seal & Stamp Co., Atlanta, Ga.

**Steps. (Extension, for Railroad Coaches.)**  
Blake Car Step Works, Charlotte, N. C.

**Stirrups. (Building.)**  
Chesapeake Iron Works, Baltimore, Md.

**Stock Certificates, Bonds and Seals.**  
Baltimore Office Supply Co., Baltimore, Md.  
Dixie Seal & Stamp Co., Atlanta, Ga.

**Stokers. (Mechanical.)**  
Babcock & Wilcox Co., New York, N. Y.  
Harrisburg Fdry. & Mach. Works, Harrisburg, Pa.  
Westinghouse Machine Co., Pittsburgh, Pa.

**Storage Batteries.**  
Nec. Storage Battery Co., The, Philadelphia, Pa.  
Lee Electric Co., Baltimore, Md.  
Westinghouse Machine Co., Pittsburgh, Pa.

**Strainers.**  
Cameron Steam Pump Wks., A. S., New York, N. Y.

**Structural Steel and Iron.**  
American Bridge Co. of New York, New York, N. Y.  
Baltimore Bridge Co., Baltimore, Md.  
Belmont Iron Works, Inc., Philadelphia, Pa.  
Blaw Col. Steel Centering Co., Pittsburgh, Pa.  
Carnegie Steel Co., Pittsburgh, Pa.  
Chesapeake Iron Works, Baltimore, Md.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Cincinnati Iron & Steel Co., Cincinnati, O.  
Des Moines Bridge & Iron Co., Des Moines, Ia.  
Dietrich Bros., Baltimore, Md.  
Hoffman & Co., R. C., Baltimore, Md.  
Jones & Laughlin Steel Co., Pittsburgh, Pa.  
Missouri Valley Bridge & Iron Co., Leavenworth, Kans.  
Phoenix Iron Co., Philadelphia, Pa.  
Republic Iron & Steel Co., Youngstown, O.

Ritter-Conley Mfg. Co., Pittsburgh, Pa.  
Roanoke Bridge Co., Roanoke, Va.  
Roanoke Iron Works, Inc., Roanoke, Va.  
Schreiber & Sons Co., The L., Cincinnati, O.  
Snead Architectural Iron Works, Louisville, Ky.  
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.  
Vincennes Bridge Co., Vincennes, Ind.  
Virginia Bridge & Iron Co., Roanoke, Va.  
York Bridge Co., York, Pa.

**Stump Pullers.**  
Zimmerman Steel Co., M. R., Lone Tree, Ia.

**Sugar-Mill Machinery.**  
Pratt Engineering & Mach. Co., Atlanta, Ga.

**Sulphur.**  
Union Sulphur Co., New York, N. Y.

**Super-Heaters. (Steam.)**  
Babcock & Wilcox Co., New York, N. Y.  
Power Specialty Co., New York, N. Y.

**Surveying Instruments.**  
Keuffel & Esser, Hoboken, N. J.  
Weber & Co., F., Philadelphia, Pa.

**Switchboards, Switches, etc.**  
Emberg's Elect. & Mech. Wks., St. Joseph, Mich.  
Fort Wayne Electric Works, Fort Wayne, Ind.  
General Electric Co., Schenectady, N. Y.  
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.

**Switches. (See Railroad Frogs and Switches.)**

**Switchstands.**  
American Valve & Meter Co., Cincinnati, O.  
Weir Frog Co., Cincinnati, O.

**Tachometers. (Electric.)**  
Electric Speedometer Co., Washington, D. C.

**Tackle Blocks. (For Wire or Manila Rope.)**  
Patterson Co., W. W., Pittsburgh, Pa.

**Tags.**  
Dennison Mfg. Co., Boston, Mass.

**Tanks. (Iron and Steel.)**  
American Water Softener Co., Philadelphia, Pa.  
Caldwell Co., Inc., W. E., Louisville, Ky.  
Case Threshing Mach. Co., J. I., Racine, Wis.  
Casey-Hedges Co., Chattanooga, Tenn.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Cole Mfg. Co., R. D., Newnan, Ga.  
Des Moines Bridge & Iron Co., Des Moines, Ia.  
Gen City Boiler Co., Dayton, O.  
Harry Bros. Co., Dallas, Tex.  
Hartley Boiler Works, Montgomery, Ala.  
Keefer Co., E., Williamsport, Pa.  
Kennett Co., Chicago Heights, Ill.  
Lombard Iron Works, Augusta, Ga.  
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.  
New Orleans Rfg. & Metal Wks., New Orleans, La.  
Oil City Boiler Co., Oil City, Pa.  
Petroleum Iron Works Co., Sharon, Pa.  
Ritter-Conley Mfg. Co., Pittsburgh, Pa.  
Scotfield & Sons Co., J. S., Macon, Ga.  
Sydney Pump & Well Co., Richmond, Va.  
Tennessee Metal Culvert Co., Nashville, Tenn.  
Virginia Bridge & Iron Co., Roanoke, Va.  
Walsh & Weldner Boiler Co., Chattanooga, Tenn.

**Tanks. (Wood.)**  
Baltimore Cooperage Co., Baltimore, Md.  
Baldwell Co., Inc., W. E., Louisville, Ky.  
Dixie & Son, G. M., B. Park, Pa.  
Sydney Pump & Well Co., Richmond, Va.

**Tapes. (Measuring.)**  
Keuffel & Esser, Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.  
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Piedmont Electric Co., Asheville, N. C.  
Western Electric Co., New York, N. Y.

**Telephone Cable.**  
Western Electric Co., New York, N. Y.

**Telephone Poles. (See Cross-arms.)**  
Intern'l Crea. & Constr. Co., Galveston, Tex.  
Western Electric Co., New York, N. Y.

**Terra-cotta.**  
Atlanta Terra-Cotta Co., East Point, Ga.  
Ribb Sewer Pipe Co., Macon, Ga.  
Maryland Terra-Cotta Co., Baltimore, Md.  
Pomona Terra-Cotta Co., Pomona, N. C.  
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American Sheet & Tin Plate Co., Pittsburgh, Pa.  
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Jennings Sons Steel Sales Co., Wm., St. Louis, Mo.

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Ingersoll-Rand Co., New York, N. Y.

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Caldwell & Co., Inc., W. E., Louisville, Ky.  
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.  
Chicago Bridge & Iron Works, Chicago, Ill.  
Cole Mfg. Co., R. D., Newnan, Ga.  
Des Moines Bridge & Iron Co., Des Moines, Ia.

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Spindel, J. G., Reading, Pa.

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Rome Scale & Mfg. Co., Rome, Ga.

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La Belle Iron Works, Steubenville, O.  
National Tube Co., Pittsburgh, Pa.  
Youngstown Sheet & Tube Co., The, Youngstown, O.

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Davis Foundry & Machine Works, Rome, Ga.  
Dayton Globe Iron Works Co., Dayton, O.  
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Poole Engineering & Mach. Co., Baltimore, Md.  
Smith Co., S., Morgan, York, Pa.  
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De Laval Steam Turbine Co., Trenton, N. J.  
Emerson Steam Pump Co., Alexandria, Va.  
Ft. Wayne Electric Works, Ft. Wayne, Ind.  
General Electric Co., Schenectady, N. Y.  
Southwick Fdry. & Mch. Co., Philadelphia, Pa.  
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Western Electric Co., New York, N. Y.  
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Frick Co., The, Wagoner, Pa.  
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Jenkins Bros., New York, N. Y.  
National Tube Co., Pittsburgh, Pa.  
Powell Co., Wm., Cincinnati, O.  
York Mfg. Co., York, Pa.

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Glidden Varnish Co., Cleveland, O.

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Troy Wagon Works Co., Troy, O.

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Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.  
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**Wall Ties.**  
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

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Cameron & Barkley Co., Charleston, S. C.  
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.

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American Valve & Meter Co., Cincinnati, O.

**Waterproofing. (For Brick Work.)**  
Barrett Mfg. Co., Philadelphia, Pa.  
Carolina Portland Cement Co., Charleston, S. C.  
National Roofing Co., Tonawanda, N. Y.

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National Roofing Co., Tonawanda, N. Y.

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**Water-Works Supplies and Appliances.**  
American Cast Iron Pipe Co., Birmingham, Ala.  
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Columbian Iron Works, Chattanooga, Tenn.  
Glanworth Pipe & Foundry Co., Lynchburg, Va.  
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Leffel & Co., The, Philadelphia, Pa.  
McWane Pipe Works, Lynchburg, Va.  
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United States Metal Products Co., New York, N. Y.  
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Baltimore Cooperage Co., Baltimore, Md.  
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Youngstown Sheet & Tube Co., Youngstown, O.

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Meyers Mfg. Co., Fred J., Hamilton, O.  
New Jersey Wire Cloth Co., Trenton, N. J.  
Wight & Co., W. N., New York, N. Y.

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Buckeye Wire & Iron Works Co., Columbus, O.  
Cincinnati Mfg. Co., Cincinnati, O.  
Diamond Wire Products Co., Columbus, O.  
Dow Wire Works Co., Louisville, Ky.  
Dufur & Co., Baltimore, Md.  
Dufur, Baggett & Co., Baltimore, Md.  
Jones & Co., L. E., Baltimore, Md.  
Meyers Mfg. Co., The Fred J., Hamilton, O.  
New Jersey Wire Cloth Co., Trenton, N. J.

**Wire Netting.**  
American Steel & Wire Co., Chicago, Ill.  
New Jersey Wire Cloth Co., Trenton, N. J.

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Contractors' Plant Mfg. Co., Inc., Buffalo, N. Y.  
Roebbing's Sons Co., J. A., Trenton, N. J.  
Williamsport Wire Rope Co., Williamsport, Pa.  
Youngstown Sheet & Tube Co., Youngstown, O.

**Wire Rope Clips.**  
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**Wire Rope Thimbles.**  
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Ingersoll-Rand Co., New York, N. Y.

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Kline, Lewis T., Alpena, Mich.  
Knight Mfg. Co., Canton, O.  
Lane Mfg. Co., Montpelier, Vt.  
Ober Mfg. Co., Chagrin Falls, O.  
Shimer & Sons, Samuel J., Milton, Pa.  
Smith-Courtney Co., Richmond, Va.  
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Plymouth Cordage Co., North Plymouth, Mass.  
Whitlock Cordage Co., New York, N. Y.



**"CLASSIFIED OPPORTUNITIES"**  
See Pages 82, 83 and 84.

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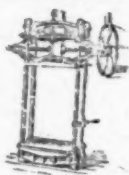


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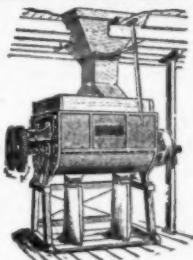


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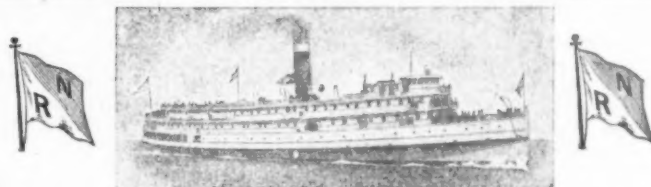
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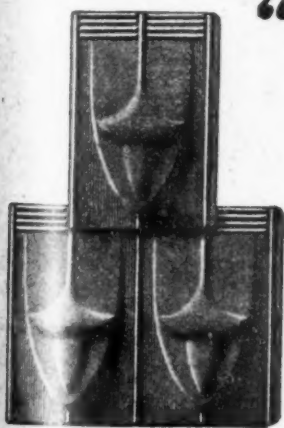
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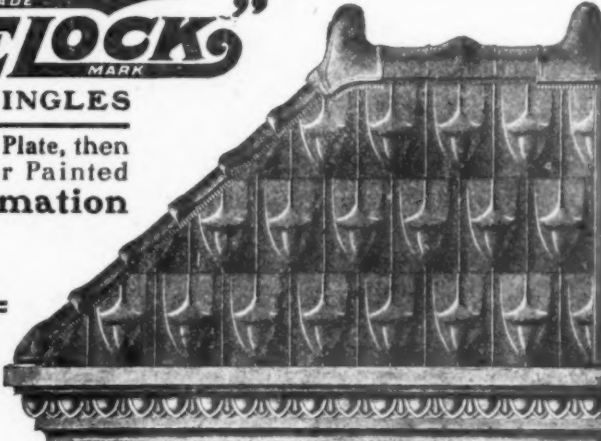
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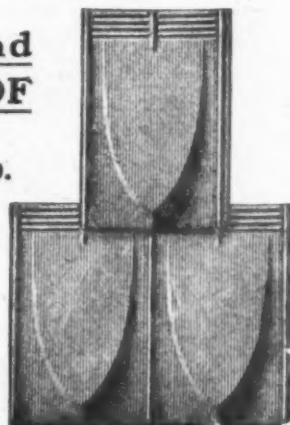


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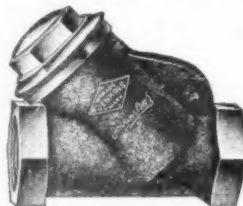
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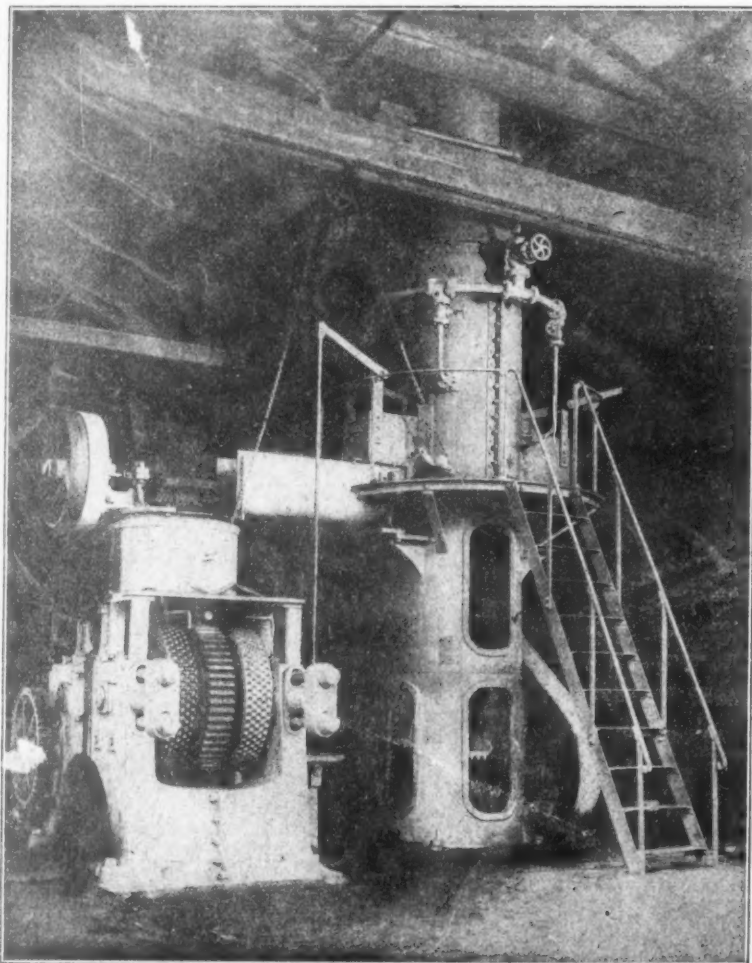
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